

Le Petit Neptune François



*East South East View of the
TOWER OF CORDOUAN,
From an original engraved by Louis XV in 1763.*

Printed and Sold by the Author, at the Office of the Parisian, No. 10, Rue de la Harpe, Paris.

LE PETIT NEPTUNE FRANÇAIS;

OR,

FRENCH COASTING PILOT,

FOR THE

COAST OF FLANDERS, CHANNEL, BAY OF BISCAY,
AND MEDITERRANEAN.

TO WHICH IS ADDED,

THE COAST OF ITALY FROM THE RIVER VAR
TO ORBITELLO;

WITH THE

GULF OF NAPLES,

AND THE

ISLAND OF CORSICA;

ILLUSTRATED WITH CHARTS, PLANS, &c.

Hunc, tu quisquis es, tali favore amplectare, quali nitore nunc ipsum tua mentis perspicacitate constare intueberis.

J. LIPS.

LONDON:

PRINTED FOR W. FADEN, GEOGRAPHER TO HIS MAJESTY, AND
TO HIS ROYAL HIGHNESS THE PRINCE OF WALES,
CHARING-CROSS.

1793.

ADVERTISEMENT.

THE alterations in the Port of Cherbourg being at present unfinished ; an account of the construction and progress of the new works is given in an Appendix.

All the soundings in the following Directions are in *French fathoms*, each of five French feet ; the proportion of the French foot to the English foot being nearly as 14 to 15.

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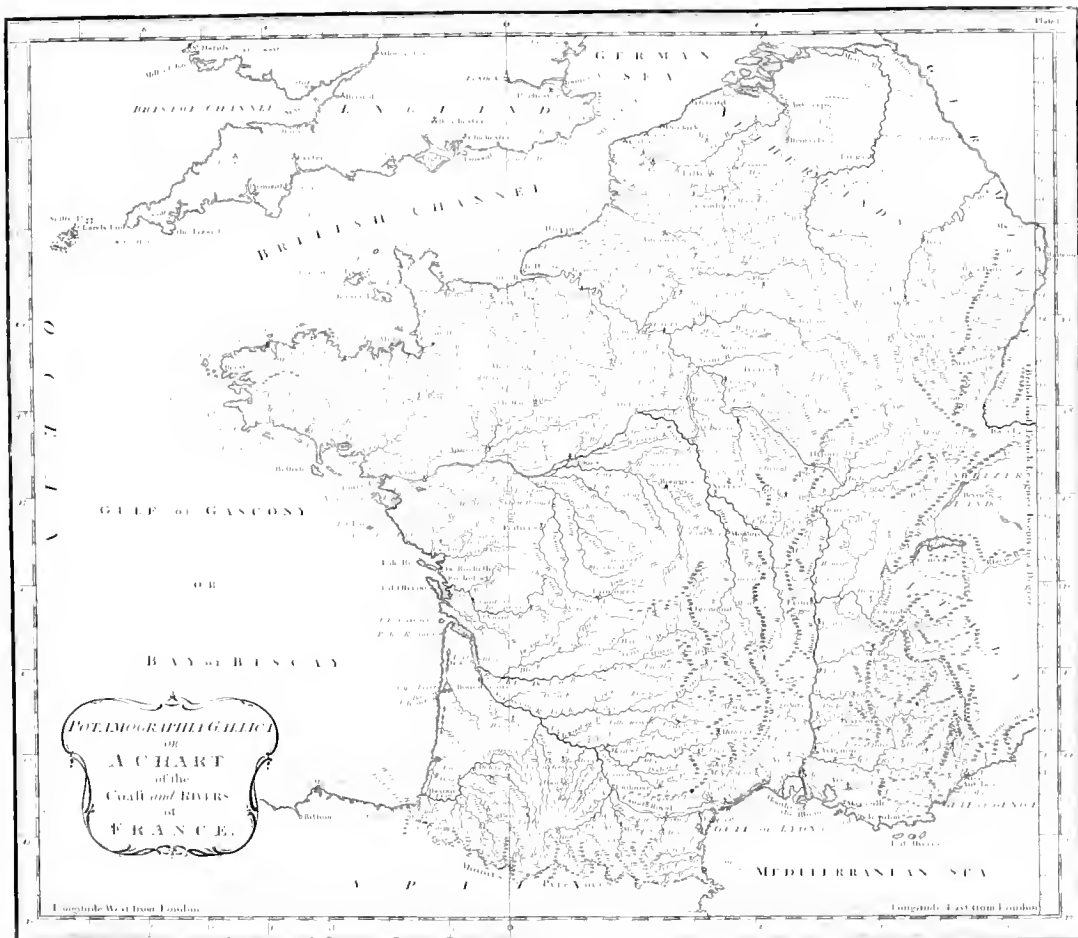
ERRATA.

P. 45, line 10, have assured me, *add* (says Du Bocage).

P. 127, line 19, La Glesta, *read* La Testa.

P. 131, line 3, directions for the Eastern Coast, *read* WESTERN.

P. 131, line 7, Cape Mulo, *read* Cape Muro.



A TABLE

Of the principal Places on the COAST of FRANCE, whose Situations of Latitude and Longitude have been determined by Astronomical Observation, by Messrs. MARALDI and CASSINI DE THURY, Members of the Royal Academy of Sciences at PARIS.

	Latitude.			Longitude from Ferro.			Long. from the Lizard.			Long. from London.			Long. from Paris.		
	d.	m.	s.	d.	m.	s.	d.	m.	s.	d.	m.	s.	d.	m.	s.
Abbeville	50	7	1	19	29	40	7	26	55	1	54	55E.	0	30	20
Agde	43	18	57	21	18	11	9	15	26	3	43	25E.	1	18	11E.
Aix	43	31	35	23	6	34	10	3	49	5	31	49E.	3	6	34E.
Ambleteuse	50	48	13	19	15	46	7	13	1	1	41	1	0	44	14
Antibes	43	34	50	24	48	33	12	45	48	7	13	48E.	4	48	33E.
Arles	43	40	33	22	18	0	10	15	15	4	43	15E.	2	18	0E.
Avignon	43	57	25	22	28	33	10	25	48	4	53	48E.	2	28	33E.
Auray	47	40	4	14	40	8	2	37	23	2	44	37	5	19	52
Avranches	48	41	18	16	17	22	4	14	37	1	17	23	3	42	38
Bayeux	49	16	30	16	57	9	4	54	24	0	37	36	3	2	51
Bayonne	43	29	21	16	9	54	4	7	9	1	25	51	3	50	6
Barfleur	49	40	17	16	23	35	4	20	50	1	11	10	3	36	25
Berg	50	57	43	20	6	11	8	3	26	2	31	26E.	0	6	11E.
Bourdeaux	44	50	18	17	5	11	5	2	26	0	29	34	2	54	49
Boulogne	50	43	31	19	16	44	7	13	59	1	41	59E.	0	43	16
Bourgneuf	47	2	28	15	38	21	3	35	36	1	56	24	4	21	39
Brest	48	22	55	13	9	10	1	6	25	4	25	35	6	50	50
Brouage	45	50	11	16	35	26	4	32	41	0	59	19	3	24	34
Caen	49	11	10	17	18	13	5	15	28	0	16	32	2	41	47
Calais	50	57	31	19	30	56	2	28	11	1	56	11E.	0	29	4
Cancalle	48	40	40	15	48	15	3	45	30	1	46	30	4	11	45
Cannes	43	32	58	24	41	14	12	38	29	7	6	29E.	4	41	14E.
Carentan	49	18	17	16	24	40	4	21	55	1	10	5	3	35	20
Cherbourg	49	38	26	16	1	49	3	59	4	1	32	56	3	58	11
Collioure	42	31	45	20	45	2	8	42	17	3	10	17E.	0	45	2E.
Corbie	49	54	32	20	10	28	8	7	43	2	35	43E.	0	10	28E.
Coutances	49	2	50	16	12	35	4	9	50	1	22	10	3	47	25
Croisic	47	17	40	15	8	18	3	5	33	2	26	27	4	51	42
Dieppe	49	55	17	18	44	12	6	41	27	1	9	27E.	1	15	48
Dinant	48	27	16	15	36	40	3	54	55	1	57	5	4	23	20
Dol	43	33	9	15	53	48	3	51	3	2	40	57	4	6	12
Dover	51	7	47	18	58	57	6	56	12	1	24	12E.	1	1	3
Dunkirk	51	2	4	19	57	37	7	54	52	2	22	52E.	0	2	23
Etaples	50	30	44	19	18	16	7	15	31	1	43	31E.	0	41	44
Eu	50	2	52	19	5	3	7	2	18	1	20	18E.	0	54	57
Evreux	48	1	24	18	48	39	6	45	54	1	13	54E.	1	11	21
Fécamp	49	46	0	18	1	45	5	59	0	0	27	0E.	1	58	15
Fontarabia	43	23	20	15	51	53	3	49	8	1	42	52	4	8	7
Furnes	51	4	17	20	19	38	8	16	53	2	44	53E.	0	16	38E.
Granville	48	50	11	16	2	53	4	0	8	1	31	52	3	57	7
Gravelines	50	59	4	19	47	32	7	44	47	2	12	47E.	0	12	23
Guérande	47	19	39	15	13	24	3	10	39	1	21	21	4	46	36

	Latitude.	Longitude from Ferro.	Long. from the Lizard.	Long. from London.	Long. from Paris.
	d. m. s.	d. m. s.	d. m. s.	d. m. s.	d. m. s.
Havre	49 30 23	17 51 27	5 48 42	0 16 42E.	2 8 33
Havre de Grace	49 29 9	17 45 57	5 43 12	0 11 12E.	2 14 3
Hennebon	47 48 1	14 22 23	2 19 38	3 12 22	5 37 37
Hieres	43 7 23	23 48 11	11 45 26	6 13 26E.	3 48 11E.
Honfleur	49 25 21	17 57 17	5 50 32	0 18 32E.	2 6 43
La Ciotat	43 10 30	23 16 51	11 14 6	5 42 6E.	3 16 51E.
La Rochelle	49 9 21	16 30 5	4 27 20	1 4 40	3 29 55
Landiviseau	48 30 40	13 34 30	1 31 45	4 0 15	6 25 30
Le Crotoy	50 12 52	19 17 9	7 15 24	1 32 24E.	0 42 51
Les Sab. Olonne	46 29 50	15 52 2	3 49 17	1 42 43	4 7 58
L'Orient	47 44 34	14 17 25	2 14 40	3 17 20	5 42 35
Marseille	43 17 46	23 2 8	10 59 23	5 27 25E.	3 2 8E.
Montpellier	43 36 33	21 32 44	9 29 59	3 57 59E.	1 32 44E.
Montreuil	50 27 42	19 25 32	7 22 47	1 50 47E.	0 34 28
Nantes	47 13 7	16 6 12	4 3 27	1 28 33	3 53 48
Narbonne	43 11 13	20 40 8	8 37 23	3 5 23E.	0 40 8E.
Nice	43 41 54	24 57 22	13 14 37	7 22 37E.	4 57 22E.
Nieuport	51 7 41	20 24 55	8 22 10	2 50 10E.	0 24 55E.
Ostend	51 17 5	20 33 13	8 30 23	2 58 28E.	0 33 13E.
Painbeuf	47 17 12	15 37 7	3 34 22	1 57 38	4 22 53
Perpignan	42 41 55	20 34 5	8 31 20	2 59 20E.	0 34 5E.
Pontorson	48 33 18	16 8 15	4 5 28	1 26 32	3 51 47
Quimper	47 58 24	13 32 55	1 29 50	4 2 10	6 27 25
Quimperlai	47 51 53	14 6 0	2 3 15	3 28 45	5 54 0
Quintambert	47 39 33	15 11 50	3 9 5	2 22 55	4 48 10
Rochefort	45 56 10	16 41 26	4 38 41	0 53 19	3 18 34
Rouen	49 26 23	18 45 20	6 42 35	1 10 35E.	1 14 40
Rue	50 16 19	19 19 46	7 17 1	1 45 1E.	0 40 14
Sixfours	43 6 42	23 30 47	11 28 2	5 56 2E.	3 30 47E.
St. Briec	48 31 21	14 56 43	2 53 58	2 38 2	5 3 17
St. Jean de Luz	43 23 15	15 59 28	3 56 43	1 35 17	4 0 32
St. Malo	48 33 59	15 37 38	3 34 53	1 56 7	4 22 22
St. Martin de Ré	45 12 18	16 18 1	4 15 16	1 16 44	3 41 59
St. Michel	48 38 11	16 8 33	4 5 48	1 26 12	3 51 27
St. Pol de Leon	48 40 55	13 39 39	1 36 54	3 55 6	6 20 21
St. Quentin	49 50 51	19 3 37	7 0 52	1 28 42E.	0 56 23
St. Tropez	43 16 17	24 19 20	12 16 35	6 44 35E.	4 19 20E.
St. Vallery en Caux	49 52 12	18 21 10	6 18 25	0 46 25E.	1 38 50
St. Vallery	50 11 13	19 17 6	7 14 11	1 42 11E.	0 42 54
Toulon	43 7 24	23 36 35	11 33 48	6 1 50E.	3 36 35E.
Treguier	48 46 45	14 24 50	2 22 5	3 9 55	5 35 10
Vannes	47 39 14	14 53 34	2 50 49	2 41 11	5 6 26

The most remarkable Places on account of the Importance of their Situations.

ISLANDS.

St. Marcou	49 29 48	16 30 15	4 28 30	1 4 30	3 29 45
Pelée	49 40 22	16 4 47	4 2 2	1 29 58	3 55 13
Jersey	49 12 42	15 28 8	3 25 23	2 6 37	4 31 52
Chausey	48 52 28	15 59 10	3 46 25	1 45 35	4 10 50
De Grouais	47 38 4	14 12 23	2 9 38	3 22 22	5 47 37
Belle-Isle	47 17 17	14 33 45	2 31 0	3 1 0	5 26 15

	Latitude.			Longitude from <i>Ferro</i> .			Long. from the <i>Lizard</i> .			Long. from <i>London</i> .			Long. from <i>Paris</i> .		
	d.	m.	s.	d.	m.	s.	d.	m.	s.	d.	m.	s.	d.	m.	s.
Noirmoustier	47	0	2	15	24	43	3	21	58	2	10	2	4	35	17
Bouin	46	58	30	15	39	18	3	36	33	1	55	27	4	20	42
D'Yeu	46	42	23	15	19	14	3	16	29	2	15	31	4	40	46
D'Aix	46	0	15	16	28	55	4	26	10	1	5	50	3	31	5
Madame	45	57	35	16	32	59	4	30	14	0	1	46	3	27	1
St. Marguerite	43	31	24	24	43	22	12	40	37	7	8	37E.	4	43	22E.

FORTS AND TOWERS.

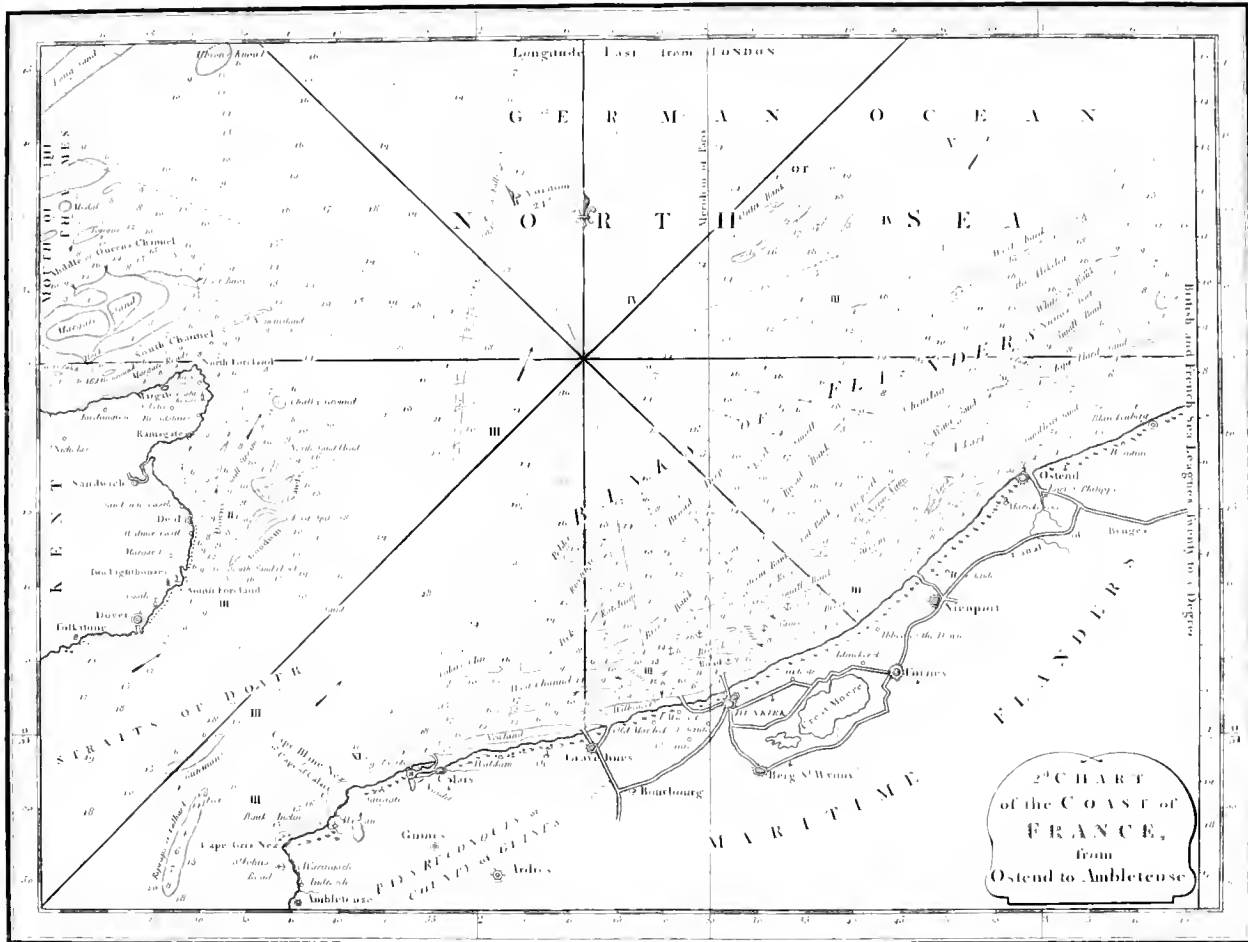
La Conchéc	48	41	2	15	36	30	3	33	45	1	58	15	4	23	30
Le Pilier	47	2	29	15	17	40	3	14	55	2	17	5	4	42	20
Brescou	43	15	20	21	6	48	9	4	3	3	31	19E.	1	6	48E.
Gien	43	2	19	23	48	14	11	45	29	6	13	29E.	3	48	14E.
St. Nicholas	49	55	14	18	42	59	6	40	14	1	8	14E.	1	17	1
Houat	47	23	29	14	41	58	2	39	13	2	42	47	5	18	2
Hedic	47	20	43	14	47	10	2	44	25	2	47	35	5	12	50
Bouc	43	23	40	22	39	23	10	36	38	5	4	38E.	2	39	23E.
St. Genest	43	22	13	22	19	28	10	16	43	4	44	43E.	2	19	28E.
Planier	43	11	58	22	54	8	10	51	23	5	19	23E.	2	54	8E.
Des Embiez	43	4	43	23	27	19	11	24	34	5	52	34E.	3	27	19E.

LIGHT-HOUSES.

Du Havre	49	31	9	17	41	57	5	39	12	0	7	12	2	18	37
De l'Ailly	49	55	17	18	38	22	4	22	40	1	15	17	1	21	38
De Barfleur	49	41	50	16	23	25	4	21	0	1	11	0	3	36	15
De Frehel	48	41	3	15	20	0	3	17	15	2	14	45	4	40	0
St. Mathew	48	19	52	12	52	35	0	49	50	4	42	10	7	7	25
D'Ouessant	48	28	30	12	35	27	0	32	42	4	59	18	7	24	33
De Ré	46	14	48	16	5	32	4	2	47	1	29	13	3	54	28
D'Oleron	46	2	50	16	14	47	4	12	2	1	19	58	3	45	13
Cordouan	45	35	15	16	29	22	4	26	37	1	5	23	3	30	38
Cette	43	23	51	21	22	7	9	19	22	3	47	22E.	1	22	7E.
Aigues Mortes	43	34	8	21	51	29	9	48	44	4	16	44E.	1	51	29E.
Ville Franche	43	40	27	25	0	25	12	57	40	7	25	40E.	5	0	25F.

TABLE shewing the Time of High Tides on the Coast and in the Ports of
FLANDERS and FRANCE, at the New and Full Moon. By M. BELIDOR,
Brigadier of Infantry, Knight of the Military Order of St. Louis, and
Member of the Royal Academy of Sciences.

		h. m.				h. m.	
Off the Banks of Flanders at sea		3	0	Penmark		3	30
On the Coast of Flanders near the shore		12	0	Benaudet		3	30
	h. m.		h. m.	Concarneau		3	45
Ostend	12 1	Dunkirk	11 45	Port Louis		4	0
Nieuport	12 0	Gravelines	11 30	Belle-Isle		1	45
Along the Coast of Flanders, within the				L'Isle Grouais		1	45
Banks, from the Straits of Dover to the mouth				Vannes		1	45
of the Schelde, the tide rises 18 feet, and only				Auray		3	45
15 off the said banks.				Morbihan		3	0
PICARDIE.				Vilaine River		3	0
	h. m.		h. m.	Along the south coast of Bretagne, from the			
Calais	11 30	Entrance of the		mouth of the River Loire, to the Raz of Fon-			
Ambleteuse	11 0	River Somme	10 30	tenay, in the Troise, and Passage du Four,			
Boulogne	10 45	St. Vallery sur		the tide rises 18 feet. In the Roads of Dou-			
Etaples	10 45	Somme	10 45	arnenez, and of Bertbeaume, it rises 20 feet.			
Along the coast, from the Straits of Dover				At the Isle de Bas it rises 25 feet. At the			
to Cape de Caux the tide rises 18 feet.				Seven Isles it rises 30 feet. And at the Isles			
NORMANDIE.				of Bréhat, St. Malo, and Canceille, the tide			
	h. m.		h. m.	rises 25 feet.			
Tréport	10 30	La Hogue	8 0	POITOU.			
Dieppe	10 15	Off La Hogue	10 30	On the Coast of Poitou	-	3	0
St. Valery en		Port en Bessin	8 0	Beauvoir	-	3	30
Caux	10 0	Bartleur	10 30	L'Isle d'Yeu	-	3	0
Fécamp	10 0	Cherbourg	7 45	Olonne	-	3	15
Mouth of the		Off Cherbourg	10 15	L'Isle de Ré	-	3	15
River Seine	9 0	Cap de la Hague	12 30	In the Pertuis-Breton	-	3	30
Havre de Grace	9 0	Alderney	9 30	In the Pertuis d'Antioche	-	3	30
Honfleur	9 15	In the Raz of		La Rochelle	-	3	45
Quillebeuf on		Alderney	12 45	Chapus	-	3	30
the Seine	10 30	Guernsey	9 30	Roche fort	-	4	15
Rouen	12 15	Granville	6 0	Brouage	-	3	45
Caen and Dive	9 0	Mount St. Mi-		The tide rises 15 feet at La Rochelle, in			
Estrehan	10 0	chel & Pon-		the Roads of the Isle of Ré, and Chef du			
Isigny	10 0	torson	6 30	Bois, as also on all the coast of Poitou.			
At Granville, Guernsey, Jersey, and Alder-				GASCONY AND GUIENNE.			
ney, the tide rises from 36 to 40 feet, and from				On all the Coast of Gascony & Guienne	3	0	
La Hague to Cape de Caux it rises only 18.				At the entrance of the Garonne, to the			
BRETAGNE.				north of the Tower of Cordouan	4	30	
	h. m.		h. m.	Royan, on the Garonne	-	3	45
Canceille	6 0	In the Passage		South of the Tower of Cordouan	-	3	45
St. Malo	6 0	du Four	4 0	Bordeaux	-	7	15
The Road of		In the Yroise	4 15	In the Bassin d'Arcasson	-	3	45
La Flénaye	6 0	In the Bay of		Memissan	-	3	15
Isles of Bréhat	6 0	Brest	3 30	Bayonne	-	3	45
Tréguier	5 30	In the Port of		St. Jean de Luz	-	3	15
Morlaix	5 15	Brest	3 45	On all the north Coast of Spain	-	3	0
St. Pol de Leon	5 15	In the Raz of		In all the Ports and Harbours of the			
Ile de Bas	5 15	Fontenay	4 0	same Coast	-	3	45
Porsal	5 0	Hodierné	3 30	The tide rises 15 feet at Bourdeaux and			
Off Ushant Is-		On the S. Coast		Bayonne, and on the whole Coast of Gascony			
lands at sea	4 30	of Bretagne	3 0	and Guienne.			



LE PETIT
NEPTUNE FRANÇAIS.

CHAP. I.

Directions for sailing on the COAST of FLANDERS between OSTEND and CALAIS.

OSTEND.

To sail into Ostend, you must run close to the eastward of the town, by the beacon on the east point, where you will have deep water into the harbour called the Gueule. From the west of the town runs a flat, which must be avoided a ship's length or two.

The tide rises in the mouth of this barbour 16 feet, and has 6 feet at low water. Between the Jetties is good anchorage for ships of great burden to float in at low water.

The shore of Flanders is full of sand-hills and hummocks. St. Catherine's is half a league to the southward of Ostend. Middlekercke is a high flat steeple, and lies two leagues S W by S from Ostend, and near two leagues N E by N from Nieuport, which has two steeples; one is a flat tower, and the other has a spire. The Lady of Lombaerdzyde, a high flat steeple, lies a little to the northward of Nieuport.

NIEUPORT.

Before the mouth of this harbour is a bank, which extends from east to west one league; it is dry at half flood, and has no more than 8 feet water at high tides.

To enter Nieuport, you must sail in from the westward to the southward of the said bank, between that and the land, until the innermost beacon comes even through, or to the eastward of the outermost, and then run in the mid

channel right by them, between the two heads (between the bank and the land the ground shoals gradually) on the north side of the bank is 3 fathoms close to it. Within the mouth of the harbour there are buoys on both sides of the channels, between which you are to steer until you come before the town, which is about a cannon-shot from the sea.

This harbour is dry at low water, and rises 13 feet in common tides.

From Nieuport to Dunkirk is near five leagues. In sailing from Nieuport to Dunkirk, along the shore between the banks, the ground is clean, and has 15 feet at low water; it is deeper near the shore, opposite the Abbey of the Downs, and between it and Broers bank, thwart of which being the narrowest channel, you must keep close along shore.

DUNKIRK.

The road of Dunkirk lies at the distance of 2 miles and a half from the town, behind the Brack, a sand-bank which extends parallel to the shore, 6 miles east and west, and shelters ships from a N W, north, and N E wind in 2 fathoms, at low water, shoaling gradually to the shore: the depth upon this bank being only 4 feet, at low water, it cannot be got over but at flood time. In the Road you may anchor, to the east of Dunkirk, almost close to the Jetties, in 9, or 10 fathoms very good holding ground, being clay mixed with sand; and to the west, in 6, 7, or 8 fathoms water.

Directions for sailing in through the WEST CHANNEL.

As soon as you have brought Gravelines steeple S by W, you come abreast of the Wilbraert or Wilbert Sand-head, between which and the Bree or Broad Bank is a wide channel; the Wilbraert Sand is gradual to, and has no less than 3 and a half fathoms on the west end of it, at low water, and so has the Breebank on the west end, but is steeper to; between the westernmost part of these two sands, you may either steer in, or turn by your lead, till you come to bring Gravelines steeple to touch the Sand-hill in Gravelines-road, which you must not shut in till you open Mardick Tower to the eastward of Berg steeples, in order to shun the Splinter, which is steep to, and has no more than 6 or 8 feet on it at low water. If you have a leading wind, as soon as you have opened Berg to the eastward of

Mardick Tower, or brought Mardick Tower on the west Pier-head, you may haul in directly for Mardick Pier-heads, till you have shot within the Brack, which you will know either by deepening your water, or by bringing La Fernouk steeple between the west Battery and the Risban; then you may steer into what part of the Road you please by your lead.

To sail into Dunkirk Harbour, you must bring the innermost beacon a handspike's length to the eastward of the outermost; and steer in that direction close to the east beacon, till you get into the channel between the two Jetties, which will carry you safe into the Harbour.

The tide rises here 12 feet.

BUOYS in the DUNKIRK ROAD.

In the month of August, 1776, the Board of Admiralty of Dunkirk gave the following notice to navigators, viz.

“ In consideration of the advantages which navigation has reaped from the Four Buoys placed to the west of the Road of Dunkirk, according to the general information given in 1774, which gave notice that navigators in entering the Road through the west Channel, would meet with the First Black Buoy on the east point of the bank, called the Geere, at the entrance of the Road, which they are to leave on the starboard side.

“ A Second Buoy, likewise Black, at the point of the bank, named Snau, or Splinter, opposite to Great Mardick, which they leave also on the starboard side.

“ A Third Buoy, White, at the west point of the bank Brack, which they are to leave on the starboard side.

“ And a Fourth Buoy, Black, at the point of the Plateau (or flat) of Mardick; that is to say, at the most advanced point of the strand, opposite the Channel of Mardick, which they are to leave on the starboard side.

“ Navigators will therefore observe, that the Three Black Buoys above mentioned are on the land-side, and the White one in the offing.

“ It has been resolved by the officers of the admiralty established for Flanders at Dunkirk aforesaid, with the advice of the deputies of the pilotage, to order two more Buoys to be laid at the east Channel, to point out its entrance.

“ Vessels coming from the northward, and intending to enter the east Channel or passage, will find on the north point of the bank, named Trapegeer, or Cam’s Bank, a Black Buoy, which they are to leave on the larboard side.

“ And on the east point of the bank named the Helst, which is a continuation of the Brack, they will find a White Buoy, which they are to leave on the starboard side.”

For sailing out of DUNKIRK ROAD through the EASTERN CHANNEL.

You may sail along shore by your lead, borrowing chiefly on the main, because the Brack is steeper to than the shore, till you bring Berg steeples within half a ship’s length to the westward of Zudcote steeple; and keeping them so, you are to sail out directly between the tail of the Brack and the Cams, where you will have no less than 5 or 6 fathoms at low water; but as soon as you deepen your water to 9, 10, or 11 fathoms, you are then got into the eastern Channel, and are to haul up E by S, or more southerly, till you shoal your water to 7 fathoms; and so keep borrowing on the Cams or Broers in 7 fathoms, or steering out into the Channel into 11 fathoms, you will find an E by N course will carry you all the way to Nieuport.

The reason for borrowing on the sands next the shore is, because they are very gradual, and more to be depended on than the north side of the Channel.

From Dunkirk to Gravelines is above three leagues, between which appears the little sharp spire of Little Seinte, a thick flat steeple of Great Seinte, and the high sharp steeple of St. George’s.

GRAVELINES.

Gravelines has a tall spiry steeple, and is easily known by two mills, one at the west end of the town, and the other at the east end: as you come from the sea the town appears like an island; the land is low and full of hummocks, and a little to the eastward of it stands an old monastery.

This harbour being dry at low water, must always be entered at high tide. There are two beacons, which you bring on in a line, and then you may sail in between the Jetties.

When you come from Dunkirk, take care to avoid a reef of sand, which

lies a good way off: on the west side runs a reef, which you take care also to keep clear of. You may sail along the flat that runs at some distance from the shore, almost as far as Calais, called Nieuland, or cross it in 3, 4, or 5 fathoms water.

From Gravelines to Calais is above three leagues, between which are seen the two flat steeples of Hooghenpryse and Dasen; and the flat church of Wal-dam, with a little spire in the middle of it.

CALAIS.

In sailing into this port, you must keep the mill at the east end of the town right over the eastern Jetty head, and so run in close by it, keeping the citadel to the west. You must avoid the little reef that runs from the head of the western Jetty. When you are between the Jetties, steer to the westward for Paradise, where you will lie dry at low water.

Though this port is dry at low water, it is not safe to enter, because of the strong flood tides, and on account of the anchors of ships, till it is almost high tide, when there is but three fathoms of water. This port is dangerous with a northerly wind.

A Description of the BANKS of FLANDERS.

OUTERBANK.

Outerbank is two and a half leagues from Ostend, and has about 15 or 16 feet water. When St. Catherine's steeple is on a line with Ostend, then you are on this bank.

Between this and Ostend there are two other banks, on which you have 3 fathoms.

GEERE.

Off the coast of Ostend to Nieuport are four banks, that begin off Ostend; the first and nearest the land is called the Geere, between which and the land is a channel, wherein is 8, 9, and 10 fathoms water.

L A L A N D.

The second is called Laland, and ends against Nieuport; in the channel between this bank and the Geere is 8 and 9 fathoms water.

S T R O O M and S T O N E B A N K,

Which is the third, is divided into two by a small channel, the east part of which is called Stroom, and the west part, ending athwart of Dunkirk, is called the Stonebank, which hath on the east side a hook that stretches off in a point towards Nieuport. Upon this bank is 3 or 4 fathoms water, and on the eastern part 5 or 6 fathoms.

S A N D E L E and C A L B A N K.

The fourth is also divided into two banks, the eastern named Sandele, and the western Calbank.

Those that sail on this coast, run without the banks till they come against Broad or Breebank, and then run in along by it, in 5 or 6 fathoms. In the channel is 15 fathoms water, and every one of these four banks has a dry Polder.

When the two flat steeples, that are to the southward of Nieuport, are a handspike's length asunder, then you are athwart these banks, which have no more than 1 fathom at low water, and are almost dry in spring tides.

You may anchor between these banks in 9, 10, 11, or 12 fathoms, and at high tides may run over them in 4 fathoms; but when you are to the westward of them, you will find 8, 9, and 10 fathoms.

B R O E R S B A N K.

The Broers Bank is three-cornered, and lies close to the land off Broers and the Abbey of the Downs, extending from the shore about W N W one league. When the Abbey bears south, you are at the innermost part of this bank, in 4 fathoms at low water: but those who sail between these banks, commonly pass to the westward of this bank.

CAM'S BANK.

Cam's Bank lies to the westward of Broers, on which is 3 fathoms water. You may sail between this bank and the land, in 8, 9, or 10 fathoms, and may anchor there for all winds. By the land, between this and Broers Bank, is 5 fathoms.

SPLINTER.

From the west of Dunkirk runs another bank, called the Splinter, which is dry in many places at low water.

WILBRAERT, or WILBERT.

From the west of Dunkirk runs the bank called Wilbraert, on which you will have 10, 11, and 12 fathoms water. When Bourbourg steeple is in the valley of the Sand-hill, you are then athwart this bank. By these marks you may sail from Dunkirk through these banks, N N W to the sea.

Off the coast, between Dunkirk and Gravelines, lie five long banks. When Gravelines is S E from you, then you are athwart the south end of them; and when Nieuport is likewise to the S E, then you are athwart of the north end of them. The channels between them have from 8 to 20 fathoms water.

CLIFF.

The outermost and western bank, called the Cliff, bears about N E from Calais above 7 leagues, on which there is 3 and a half fathoms.

RUTTEINGE.

The second, called the Rutteinge, bears N E from Calais Cliff 7 and a half leagues, and has from 5 to 6 fathoms water; but on the south end of it is a Polder of a fathom. When the south end of Berg is brought between the two flat steeples to the west of Dunkirk, then you are athwart of this Polder.

To the east of Dunkirk are three or four mills; when the outermost is in a line with the east end of the town, it is a good mark for this Polder; then the steeple of Dunkirk will be 5 leagues S E.

The DYKE.

The third bank is called the Dyke, which bears from Calais Cliff N E by E, and has 4 or 5 fathoms. On the ends of this bank are two Polders; that at the south end is 1 fathom deep, and lies upon the marks of Berg about N W, somewhat westerly from Dunkirk; it is called the Polder of the Dyke, or Dyke-Polder; the other is about 4 and a half fathoms deep, and lies N W from the Abbey of the Downs.

These banks are very dangerous; chiefly the Rutteinge, which lies almost in the mid-way, having at low tide no more than 2 fathoms water.

KETTEL BANK.

The fourth bank is called Kettell Bank; it bears from Calais Cliff N E by E, and has 4, 5, and 6 fathoms at low water. On the south end is a Polder of one fathom at low water, which is dry at spring tides. In the channel between this and the Broad Bank are 19 and 20 fathoms water.

BROAD or BREE BANK.

The fifth is the Broad Bank, or Brec, which bears E N E from Calais Cliff. Towards the south end it has 3 or 4 fathoms, and a Polder of only 1 and a half fathom; at the north end the depth is from 6 to 8 fathoms water; this bank extends six leagues, till Nieuport be S E from you, and the Abbey of the Downs almost south, distant 2 leagues.

The TIDES and CURRENTS.

Along the coast of Flanders, on the land, a south and north moon makes high tides.

In the sea, off the Banks, and in the middle of the Straits between Dover and Calais, a S W moon makes high tides.

At Dover and the North Foreland, a south and north moon.

In the Downs, a S S W moon.

Along the Banks, the first of the flood sets over them towards the land;

about one third of the tide sets along the shore ; but the after-flood sets directly to the north, in the middle of the sea. When the flood begins to go thwart the banks off at sea, then it is half-flood at land ; so that you may go into any of the harbours on this coast with 5 or 6 feet water.

In the middle, between Dover and Calais, the flood sets N E by E, and the ebb S W by W.

SOUNDINGS,

Between DOVER and CALAIS.

A little without the banks of Flanders, 18, 19, and 20 fathoms ; but about North Foreland, 26, 28 ; and near the Goodwin Sands, which is the deepest, 30 fathoms.

When from the poop in 16 fathoms you can see the coast of Flanders, then you are within the banks of Flanders.

You may in 24 fathoms see Calais Cliff and the South Foreland.

COURSES and DISTANCES.

From Ostend to Nieuport, S W by S 4 leagues.

From Nieuport to Dunkirk, W S W 5 leagues.

From Dunkirk to Gravelines, W S W 3 leagues.

From Gravelines to Calais, W S W $3\frac{1}{2}$ leagues.

From Calais to Calais Cliff, S W by W 1 league.

From Calais to Dover, W N W 7 leagues.

CHAP. II.

Directions for sailing on the COAST of FRANCE in the CHANNEL.

THE cape of Calais, by the Dutch called Calais Cliff, is a very white cliff, on that account named, by the French, Blanc Nez.* It is a pretty high land, which appears 6 or 7 leagues off: its distance from the South Foreland, which also makes the south entrance of the Downs, is about 7 leagues to the N W. The passage between these two heads of land is called the Straits of Dover, or Pas de Calais;† and the depths of the channel between them are from 18 and 20 to 24 fathoms. Along the French coast, at a league's distance from land, you find 18 or 19 fathoms water, and in the middle of the channel 23 or 24 fathoms; but towards the English coast it grows shallower.

* From the word Nez, a nose, as well as Ness in English, in the words Sheerness, Foulness, &c. signifies a point or head of land, projecting or running out into the water; hence Blanc Nez is in English literally Whiteness.

† The width of this channel is not much above 18 sea miles, but from the South Foreland to Calais there are about 22, and from Dover to Calais, about 21. The run from Dover to Calais is shorter than that from Calais to Dover, because, in the first case, the tide is always more favourable.

The distance between Calais and the castle of Dover has been geometrically ascertained in 1681, by Messrs. Picart and La Hire, two astronomers of the royal academy of sciences. In the morning of the 20th of November, when the sea was very low, they measured upon the strand of the harbour of Calais, a line, drawn from the point of the bastion of the Risbank next the sea towards Boulogne, of 10,000 French toises. Having placed a quadrant at the point of this bastion, and observed the angle which the measured basis made with the intermediate point between the two most visible towers of Dover castle, they found it to be $37^{\circ} 58'$. Then removing the instrument to the other extremity of the base-line towards Boulogne, they measured the other angle, and found it to be $137^{\circ} 30'$; whence they concluded that the vertical angle at the castle of Dover must be $4^{\circ} 32'$, and consequently the distance between the point of the above-mentioned bastion of the Risbank of Calais and the castle of Dover, equal to 21,363 French toises. Now the English statute mile being equal to 826 toises, this distance will be above 24 and a half statute miles, and very near 21 and a half nautic miles, supposing the degree of a great circle to contain 57,060 toises.

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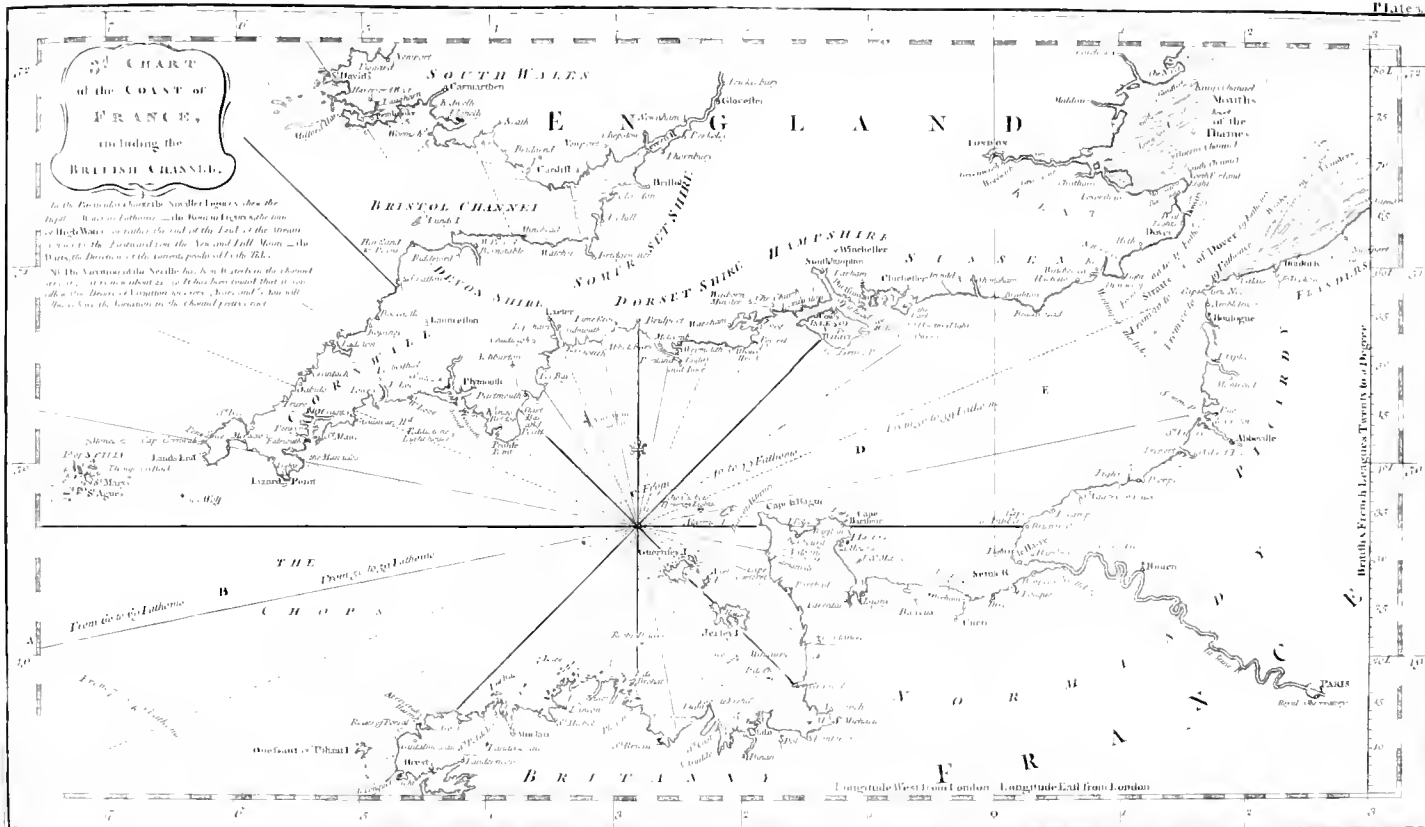
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Section of the CHANNEL and Part of the GERMAN OCEAN from the Isles of Scilly to Orford Ness.



The tides in this strait set N E by E, and S W by W; the flood sets towards N E, and E N E; and the ebb S W, and W S W.

The bottom, in this sea, consists of a fine sand. Within pistol-shot of Blanc Nez are rocks under water, which ought to be carefully avoided.

From Blanc Nez to Cape Grisnez, by the Dutch called Stuart Ness, the course lies N E and S W, near 2 leagues, the land between being pretty high and mountainous. A little south of Grisnez stands a mill with some houses, and all that country, down to the sea-shore, appears black, white, and grey, with several rocks along the coast. Between Blanc Nez and Grisnez you may cast anchor, and wait for the tide when the wind is contrary, for the ground is very good every where; the best anchorage is to the N W of Wissan, near the Anclin Bank, from 4 to 15 fathoms.

The tides set N E one quarter E, and S W one quarter W.

CALBARDE or RIPRAP S.

West from Cape Grisnez you meet with the N E point of Calbarde; it is a narrow bank of sand and large flints, which lies in length about E N E and a half N, and S W by S near 4 leagues, and not much above a mile in breadth: the N E end is the shoalest, having but 15 feet on it at low water spring tides, and 22 or 23 fathoms on either side. On the S W end you have 3 or 4 fathoms. The Calbarde bears from Dover castle S S E about 4 leagues; from Folkstone S E 4 and a half leagues; and from Cape Blanc Nez, or Calais Cliff, west about 3 leagues; its south end bears from Dunge Ness E S E nearly, about 6 leagues.

It flows at the Calbarde N E and S W; the tide runs to the eastward till 3 o'clock, at full and change, when it is half-ebb by the ground.

St. JOHN'S ROAD.

From Cape Grisnez to Ambleteuse the coast extends north and south $1\frac{1}{4}$ league, and is very foul throughout, the rocks not permitting any anchorage, and the ground being very unfit for that purpose; but in the cove, or little bay, before Ambleteuse, is a very good riding, which is called St. John's Road. Here a vessel finds shelter from the winds that blow from

the N E as far as to the S S E. But when they come about to the south, and thence as far as the north and N W, the Road becomes then very bad, the sea being very rough, and no shelter near. There is a small river above Ambleteuse, but it serves only for fishing-boats.

The anchorage in St. John's Road is from 9 to 15 fathoms. Take care to keep in view the tower of Ambleteuse through the middle of the houses, and not to approach too near the land, because of some rocks which are about a large cable's length distant from the shore.

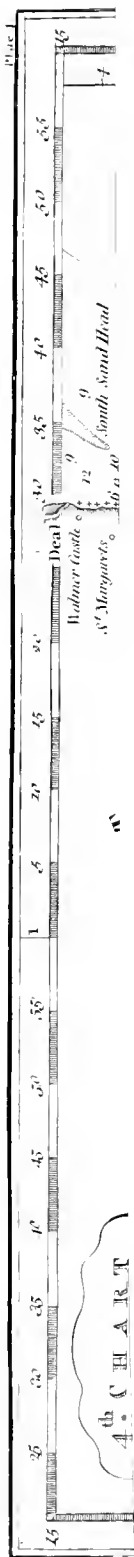
BOULOGNE.

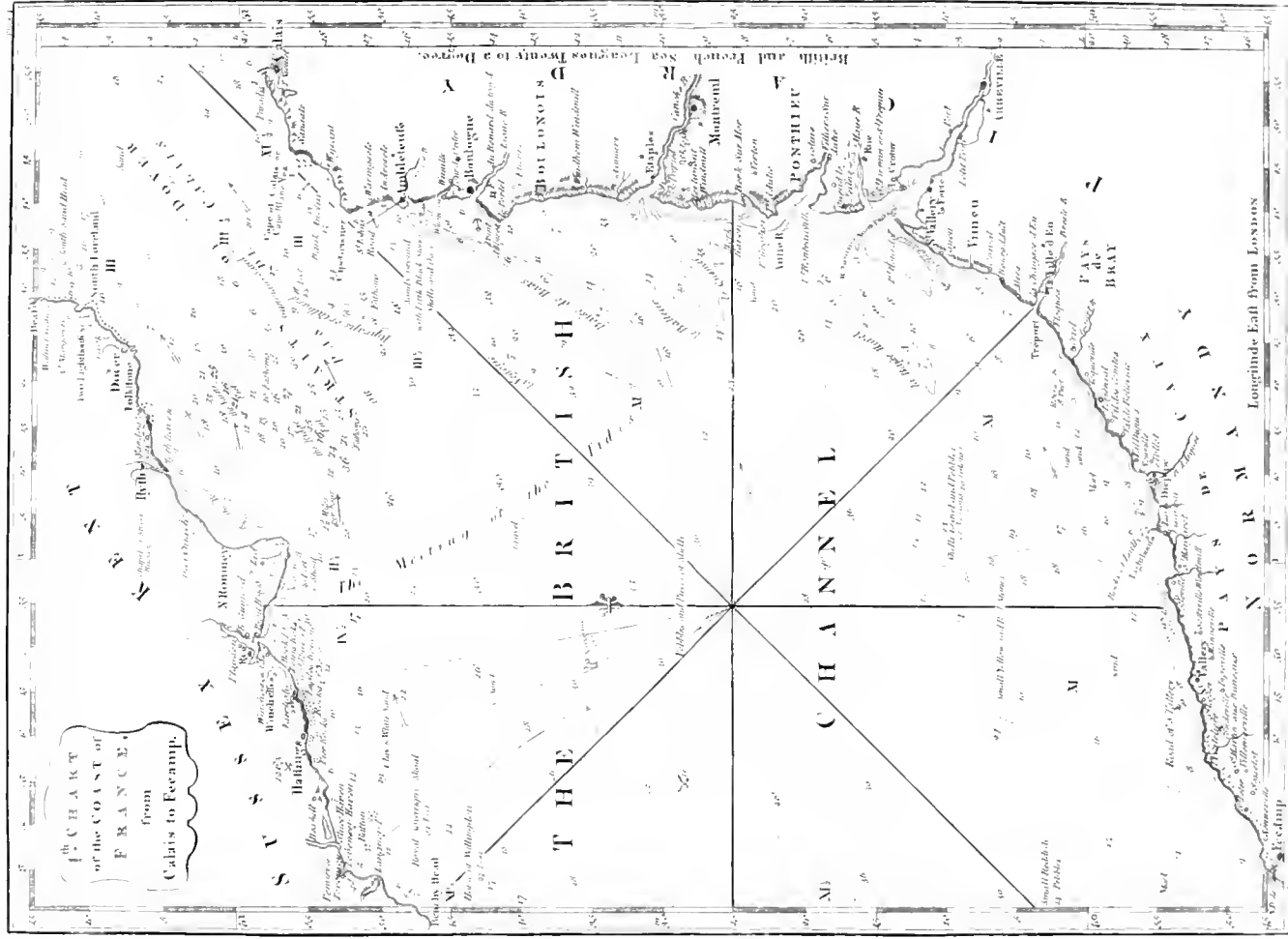
From St. John's Road to Boulogne the coast runs two small leagues south; on the north point of Boulogne is a very massy tower, called Tour d'Ordre; between this tower and St. John's Road are several rocks under water, at the distance of two or three cables length from the land, which are to be carefully avoided. The harbour of Boulogne is dry at low water, and almost barred by a sand-bank, which lies N E and S W. Over the N E end there is a buoy, and at the S W extreme a mast is erected, having a lanthorn on its top. This bank may be passed on two sides, that is, by the north and by the south, in $2\frac{1}{2}$ or 3 fathoms water. When you pass by the south, you must be careful to avoid the southern point of the entrance of the harbour, because you meet there with the point of a rock which projects into the sea.

The tides in this port are S S E and N N W; the flood running north and N N E, and the ebb south and S W.

ETAPLES.

From Boulogne to the Canche, or river of Etaples, the coast runs $4\frac{7}{2}$ leagues southward; the land between them is very high, and appears white from the sea. The river of Etaples is dry every tide, and has many banks at its entrance, most of which are so shifting that they cannot be exactly described; besides the river will admit only some small bilanders, which pass up as far as Montreuil. The town of Etaples is situated on the north side of the river.





The tides in this river are S S E and N N W, and it is high water at 30 min. past 10 o'clock, on the full and new moon. The first flood bears towards the land, the remainder N E, and the ebb to the contrary.

RIVER SOMME.

From Etaples to the river Somme the coast runs near 6 leagues southward. This river is capable of vessels of a moderate size, but its entrance is very difficult, because of a sand bank, which lies just before its mouth, and bars it. The bank extends at least $\frac{3}{4}$ of a league into the sea, which, with its situation before observed, renders the river of difficult access. It has, however, two passages, one to the north, along the northern shore, and the other to the south, along the southern shore.

In order to pass by the north you must approach the land, and take notice of a buoy which is at the head of the bank ; when you have passed that buoy, you steer on to St. Valery, which lies on the south coast of the river, and keep so till you approach nigh the southern shore. At the north point of the entrance, along the shore, are also some small Sands, which extend a little way ; wherefore you must often have recourse to your lead, and if you can procure a pilot it will be safer, for the channels of this river are subject to change, and cannot be described with precision, besides in the river itself are many banks of quicksands extremely variable.

Coming from the west, with a design to enter the river Somme, you must keep a cable's length within the point, or headland of the river, and steer thus till you can perceive the first buoy, then you shape your course by the buoys, which are three or four in number, leaving them all on the starboard side, that is to say, on your land side ; and when you are come within the buoys, and the south point of the entrance of the river, you must then push eastward in the stream till you are got a little forward, after which you steer by St. Valery, along the south coast. Within the river are many beacons, by which you know the channel that goes to St. Valery.

All along the coast from Etaples to the river Somme, the bottom is very level ; for you find but 7, 8, and 9 fathoms water, sandy ground 2 leagues from the land.

The tides here are S S E and N N W; the first flood sets upon the land about two hours, the remainder north and N N E; the ebbs are quite the contrary.

TRÉPORT.

From the river Somme to Tréport the coast runs a little above 4 leagues S W, the country between being all sandy downs, and the land of a moderate height. At Tréport is the small river Bresle, but little frequented, except by coasters of the same place; it is only capable of small barks; and on both its sides are points of sand that run $\frac{1}{2}$ a league into the sea, which is there continually rolling, so that the entrance is narrow, and very difficult.

The tides are here as at the river Somme, and it is high water when the moon is in the S S E or N N W.

From Tréport as far as Dieppe the coast runs S W quarter W near 5 leagues, the land almost nothing but white cliffs. In sailing along you have 6, 8, 9, and 10 fathoms water, sand and marl, within 5 or 6 miles of the shore, and from 16 to 18 farther off, except upon the Basse Hurel, where you find only 3 and 5 fathoms; this is a bank, about 7 miles from the mouth of the river Somme, lying N E and S W, 12 miles in length, and only 2 in breadth. About 4 miles to the westward of Tréport, and above 2 from the shore, there is a small ledge of sunken rocks, 7 or 8 feet under water, which you must avoid.

Along this coast it is high water at 30 min. past 10 o'clock; the flood along the coast is to the N E, and the ebb to the contrary point.

DIEPPE.

Dieppe is situated in the bottom of a valley between the cliffs, whence it took its name from the Celtic word *diep*, which has the signification with *deep* in English. Coming from the sea, you descry two high steeples with a large castle which stands W S W of the town near the sea-shore. On the N E side is the suburb du Paulet, and two stone Jetties, which make the entrance of the harbour. This harbour is dry at low water, and its entrance is very difficult, because of the great current both inward and outward. As soon as, and even before, you have cast anchor in the Road of Dieppe, you are

visited by pilots, and those on the land make you a signal to enter when it is high water; for if you stay till it ebbs, the entrance will be impossible, on account of the strong current outwards; wherefore you are to drop your anchor as soon as you see the signal made from the shore. After entering the harbour you moor to the key, where there is very good shelter from all winds.

The Road of Dieppe is to the west of the town, under a small church on the cliff, called St. Nicholas de Cotecote, whose steeple is remarkable, as there is no other to be seen on that cliff. The bottom of the Road is very good, and your anchors never drive, whatever wind blows: you are sheltered there against winds from S W to S E; but when it blows from the W N W, or N N E, the swell is great and violent. The anchorage is in 7 or 9 fathoms water.

It is high tides in the road as well as the harbour, at 30 minutes past 10 o'clock; or when the moon is in the S S E. The flood runs N E, and the ebb S W, and W S W along the shore.

CAPE LAILLY and its LIGHT-HOUSE.

Two leagues and a half* west from Dieppe is Cape Lailly, upon which the Chamber of Commerce, established at Rouen, has caused to be erected a Light-house, which was lighted, for the first time, on the first day of November, 1775.

“ This Light-house is situated 80 fathoms from the edge of the cliff, facing the rock named La Galere, which is the most considerable of those marked on the coast, under the denomination of the Rocks of Lailly. It is on the top of the cliff facing the rocks that the tower is built, which may be seen by a boat, when at the entrance of the two Jetties of the port of Dieppe. The whole height of the Light-house, measuring from the ground, is 56 feet; that of the lanthorn 15 feet.”

From the Light-house to St. Vallery the coast runs W by S 3 leagues: in sailing along you must keep a little void of the shore, to avoid the above-mentioned Rocks of Lailly, which lie off the land almost $\frac{1}{2}$ a league. Be-

* According to the instruction of the Chamber of Commerce; but the large survey of France makes that distance scarcely $1 \frac{1}{2}$ league.

tween the two places the shore is bound by a high white cliff, which has two openings, with two villages, the first called Pourville, and the other Veulles, both chiefly inhabited by fishermen. St. Vallery lies in a third opening westward.

St. VALLERY en CAUX.

St. Vallery lies in the third bottom, and is a small port, which is dry at low tide. It admits none but small vessels, and is little frequented by strangers. Those who desire to enter it must have the assistance of a pilot, because of the great difficulty.

The tides are S S E, and N N W.

From St. Vallery to Fécamp the coast runs W S W near five leagues, the shore all white cliffs, on the top of which you see several woods of lofty trees with numbers of steeples and houses: you find, however, within this space, three vallies near each other, whence that quarter is called the Three Vallies, though they extend not quite to the sea.

FÉCAMP, or FECAN.

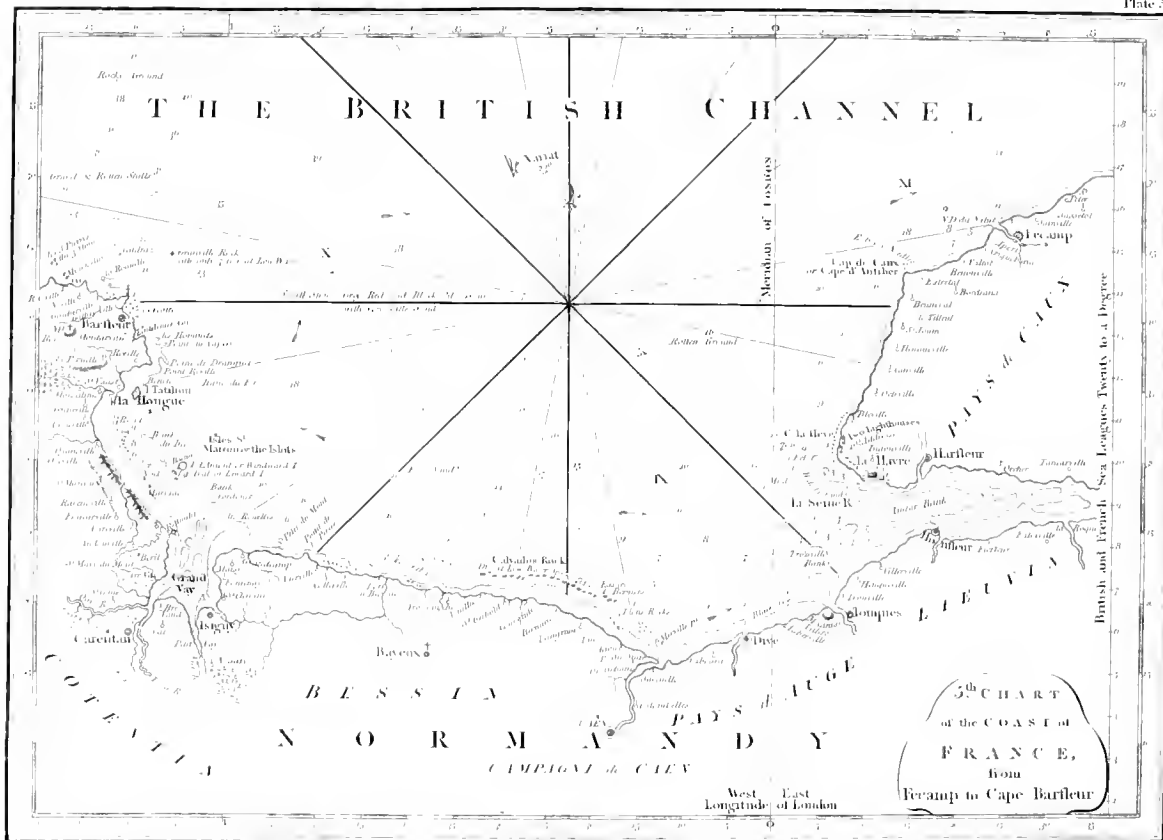
Fécamp stands in a broad valley, and is easily known by the church of stone to the N E, called Notre Dame des Bois, on the edge of the shore. Its harbour is dry at low water, and filled up with pebbles and flints, whence it will admit of none but small vessels. When you enter it you pass near a small wooden jetty, to the N E of it, called by the inhabitants Cafagnet.

The mouth of the harbour lies almost N W and S E, and its access is pretty easy, except when it blows fresh from the west.

There are two Roads before Fécamp, the great and the little: the Great Road lies over against Criquebeuf above 2 miles off: ships lie there sheltered from all winds from S E to S W in 16 fathoms at high water, and 13 at low tide, on a red clay ground mixed with sand, which secures the anchors so that they cannot drive. The Little Road, opposite to the west side of the harbour, has from 10 to 7 fathoms water according to the tide.

The moon when in the S S E, or N N W, makes there high tide.

From Fécamp to Cape de Caux, called also Cape Antifer, the coast runs S W by W, 3 leagues, all white cliffs, steep, and very high. To the north



of the cape are the rocks called Les Eguilles (the Needles) d'Etretat : they lie near the shore S W half W, and N E half E, one league from each other ; the northernmost, or L'Eguille de Bellerat, and the southernmost, called Eguille d'Etretat, are two high rocks, white and sharp pointed ; the middlemost, which is named Roche d'Etretat, is covered at high water.

The tides for the whole length of this coast, from Tréport to Cape la Heve, are N N W, and S S E.

From Cape de Caux to the south pitch of Cape la Heve or Cape de Seine (Seine head), the course lies S S W, 4 leagues ; the shore is still of white, and very steep cliffs, which the inhabitants cannot descend but by narrow paths very shelving : and though there be some small vallies, they reach not to the sea. All along this coast, from Tréport to Cape de Seine, 2 or 3 leagues from the shore, you commonly have from 13 to 17, 18, and 20 fathoms water, sandy ground, with marl or chalk ; the depth lessens as you approach the land, and increases as you remove from it.

About one mile to the S W of La Heve is the small ledge of rocks, called L'Eclat, on which there is not above 7 or 8 feet in ordinary tides.

LIGHT-HOUSES of CAPE LA HEVE.

On Cape la Heve two Light-houses have been erected in 1775, by the Chamber of Commerce, already mentioned.

“ It has been thought necessary, says their instruction, to distinguish this cape by two towers, and to place them in such a manner, that they cannot be seen in a line by any ships coming from the north, N W, and west, in order, that in coming from the offing, there may be no position in which these towers can be mistaken for those of Barfleur, or Cape Lailly, which are single.

“ The tower nearest to Havre, which is the southernmost, is placed 50 fathoms from the edge of the cliff ; the other bears N 41° E by compass, or N 20° E, corrected course, distant 50 fathoms from the first ; so that their respective direction is such, that if you draw a right line from the centre of the first to the centre of the second ; and from the centre of the first another right line towards the north, the angle formed by these two lines, the point of which will be in the centre of the first tower, will be N 41° E by compass, or N 20° E, corrected course.

“ It follows from this position, that ships making for the mouth of the river Seine, or for Havre, will see the tower in a line only from one point, which it is very hazardous to attempt before half flood, especially when near the coast, considering the dangers which encompass the little Road of Havre.

“ These towers are built with free-stone ; they are placed on a level, and are of equal height. The bodies of the light-houses, measuring from the surface of the ground, are 56 feet high ; and the lanthorns 15 feet high.

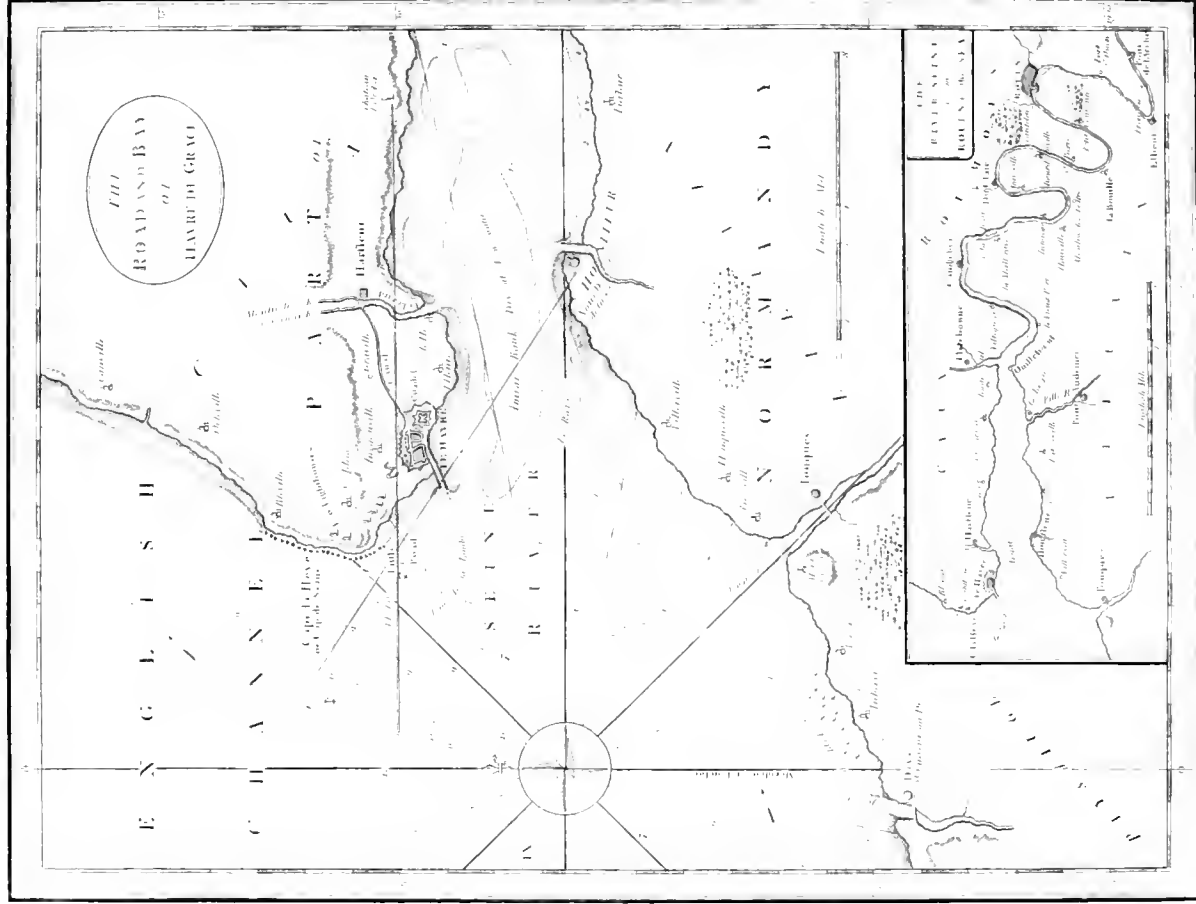
*DIRECTIONS for the ROADS of HAVRE, by Mons. De Gaulle,
Professor of Hydrography, 1776.*

There are two roads for ships before the mouth of the river Seine, called the Great and Little Road of Havre. The Great Road is 2 good leagues from the harbour, lies W S W from Cape la Heve, and extends a whole league from north to south. In the year 1690 the whole French fleet lay at anchor there for several days. The Little Road is but $\frac{1}{2}$ a league from the harbour, and lies S S E from Cape la Heve ; it is of a square form, extending about $\frac{1}{4}$ of a league every way.

“ A ship of great draught of water which should be obliged to lie some days at anchor off Havre, to wait for a high tide, must prefer the Great Road to the Little Road. These two Roads are separated from each other by banks which are called Les Hauts de la Rade (the high grounds of the road) and L'Eclat. The Little Road is between these banks and the land ; and the Great Road without the said banks.

“ To lie in the best anchoring place, you must be to the W N W of La Heve, a large league, and keep the Castle of Orcher (which is seen on the edge of a steep shore, to the eastward of Havre 3 leagues) a little open of the coast of Ingouville, which is to the northward of Havre ; then you anchor on oozy ground, from 10 to 14 fathoms, according as it is high or low water ; in case of bad weather, you may lie on two anchors S S E and N N W. The two first hours of the flood the current sets to the south, then two hours to the S E, one hour to the east, and the remainder of the tide from N E to N W.

“ If at low water a ship was obliged to go into the Little Road of Havre, either to wait for the tide, or for a pilot to carry her into the river, she must,



if the winds permit, sail between La Heve and L'Eclat (which, as said before, lies one mile S W of La Heve) keeping the Guard-house which stands on the jetty of Havre in one with the Chapel (called Notre Dame de Grace) that is seen a little to the westward of Honfleur, and you are to steer in that direction till the north of La Heve is shut by La Heve itself; then you proceed to the southward, till you come half way between La Heve and Havre, when you anchor in 3 or 4 fathoms at low water. The bottom of this road is all pebbles and oysters, laid on clay ground, which make the hold very good; but you risk to have your cables cut in a very little time, and on that account ships moor there only for one tide.

“ If it should happen that the winds from south to S W should not permit to go by the land side of L'Eclat, you might sail to the southward of it, keeping the Castle of Orcher in one with the two Towers of the gate of Ingouville, which you see joining with the town in the north part of it; and you should steer, with those marks on, till the north of La Heve is shut as above: then you come to the anchoring ground in the Little Road. You may even anchor in this channel, where there is not less than 4 fathoms at low water. These cautions are only necessary at low tide, for when two-thirds of the flood are run, you may pass every where without danger. But ships seldom come into the road of Havre without a coast pilot on board; pilots go generally as far as Barfleur, and farther, to meet them.”

A celebrated French author, Belidor, in his *Architecture Hydraulique*, makes the following remarks upon the Roads of Havre: “ The anchors cannot withstand there the violence of the currents, nor the high winds which commonly blow about the new and full moons; so that the ships which happen to be then in these Roads, are in great danger of being lost at the mouth of the Seine, or driven against the coast, from the difficulty of getting into the harbour.”

LE HAVRE DE GRACE, or the HAVRE.

About 1 league S E $\frac{1}{2}$ E from the south pitch of Cape la Heve lies the town of Havre; the land between is low and full of windmills, which are without the town.

Le Havre de Grace, called by us, for shortness sake, Havre, is the sea-

port of Paris, lying at the mouth of the river Seine, on which the French metropolis is built. It stands upon a plain spot of ground, gained out of the sea, which seems to be gradually giving way on this shore, and its harbour being entirely the work of art, requires continual industry to be kept in proper order. This lies within the walls of the town E N E and W S W, and can contain about 300 vessels at once; but the French are to enlarge it, as well as the town, at the expence of the citadel; in the spring tides the water rises 20 feet within it; the entrance is formed of two jetties of stone, the longest of which is towards the west side.

The harbour of Havre has a peculiar advantage, not only over the other sea-ports of Normandy, but over those of the whole kingdom; it is, that the water in it does not begin to ebb, at least sensibly, till 3 hours after full tide, insomuch that fleets of 120 sail have often been observed to sail out of it in one tide, even with the wind against them. The cause of this uncommon effect is generally ascribed to the Seine, whose current, crossing the mouth of the harbour, comes down with such force as soon as the sea begins to retire, that it confines the water in the harbour till it has spent its strength, which it does not generally in a shorter space of time than just now mentioned.

To enter the port, a pilot is required; and there are always some attending, in their sloops, for that purpose, except in rough weather when they cannot come off; but in this case they go to the north end of the harbour, and make you a signal. With this assistance you may very well enter the port, taking care to keep it always open, or in full view, so as to discover all the ships within, as they appear between the two towers. In this manner you must steer till you are entered. Observe to pass closer by the great tower on your larboard hand, than by the little tower on the starboard side.

The tides flow N N W and S S E.

HONFLEUR.

From Havre to Honfleur, which lies on the other side of the Seine, the course is 2 leagues S E; but there are several sand-banks between them, some of which are shifting. The most noted is Amfar, which is dry every tide; it lies about $\frac{1}{2}$ league S $\frac{1}{4}$ E and S S E from Havre. The others are nearer the south coast, and the most remarkable, which

lies $1\frac{1}{2}$ league W $\frac{1}{4}$ N from Honfleur, is called Ratier, and dries also at every tide; you meet with several others along the coast, as you go towards the little river of Touque, which are dry as the rest. There is a passage between those banks and the land, and between them and Amfar; but it is not advisable to attempt going through without a pilot acquainted with the coast, as well on account of the banks themselves, as of the great currents, which run very strong up and down the river. Neither the ships belonging to Havre or Honfleur, nor those which go up to Rouen, ever enter this river without country pilots: there is a town on the Seine, called Quillebeuf, which supplies all the vessels with them, and they have large decked boats for their purpose, which they keep always at sea, in readiness to be employed by ships that come from abroad.

The tides in all these parts have their course S E and N W.

TOUQUE.

Above $2\frac{1}{2}$ leagues to the southwestward of Honfleur, is the little river of Touque, frequented only by large boats, who load there with cider, apples, and wood, for Rouen, Havre, Dieppe, and other places. Before the mouth of this river lies the great bank of Trouville, with several small ones just at the entrance, on which are placed beacons on both sides: as they sometimes shift, they cannot be exactly described.

DIVE, or St. SAUVEUR sur DIVE.

From Touque to Dive Point is above 2 leagues, the coast running W S W. Close to this point, on the western side, runs a river of that name, which, like that of Touque, admits only very small vessels, which draw no more than 7 or 8 feet water. There are also several shifting banks at the entrance of this river, about which nothing certain can be said.

The tides here are at 10 o'clock, at new and full moon.

MOUTH of the RIVER ORNE, or RIVER of CAEN.

Seven leagues S W by W of Havre, and two leagues W S W of Dive, is the river of Caen, capable only of small vessels, that draw no more than 8 or

9 feet of water. Before it lie several banks, which render the entrance difficult, and practicable only on the eastern side, by observing the following marks :

West of the Orne or river of Caen, is a church with a high stone steeple, which has two windows, one on each side, opposite to the other. You must look through these two windows, and steer by these marks till you come within sight of a buoy, which is at the end of the banks, and also of a beacon on the point of the land. You pass between them, leaving the buoy on the starboard side, and the beacon on the larboard side. You must not spare sounding in this passage, which besides is not to be attempted but at high water ; and I would advise all such as have opportunity, to take pilots of the country. When you are got within the said beacon, close to the points of the river, you cast anchor in a deep, where you continue afloat.

The tides are at 10 o'clock.

The land from Honfleur to Dive is very high, and between there are three vallies, by which it is easily known. But from Dive to Savenelles, which lies west of Caen, it is all sandy downs. At the extreme of the low lands of this last place, appear three high steeples, which render it also very easy to be known.

Above two leagues N W from Point du Siège, or the west point of the river of Caen, and 2 miles from land, are several very dangerous rocks, called Les Essarts de Bernieres ; and between them and the said point are the Rocks du Lion, not less dangerous. At the west end of the Essarts de Bernieres begin the Rocks of Calvados which stretch along the coast, and parallel to it, at the distance of $\frac{1}{2}$ a league, for $4\frac{1}{2}$ leagues ; they are never uncovered but at spring tides, and must be carefully avoided ; when you sail along that coast, you ought not to approach nearer the land than 14 or 16 fathoms, otherwise you are in danger of running upon these rocks, close to which are 10 or 12 fathoms water.

It is high water here at 9 o'clock along the coast, but off the land, at half past 10. The flood runs along shore, but 3 or 4 leagues off the coast ; it sets E N E.

ISLES St. MARCOU.

From off the river of Caen to the Isles St. Marcou, the course is about W by N, near 12 leagues. These isles are three little spots, of a moderate height, round which one may sail, and even cast anchor; they are without inhabitants: there is a bank at each of their ends, which extends about N W and S E.

ISIGNY.

Off these isles, on the continent, is the mouth of the river of Isigny, which can receive only small vessels that draw no more than 8 or 9 feet water. At the eastern point of the entrance of this river is a ledge of rocks running into the sea, $\frac{1}{2}$ a league due north, and the entrance must be made along the western coast round this shoal. In the river you are sheltered from all winds; but it is dry every tide: a little to the west of it, along the shore, is a sand-bank, 2 leagues in length, called Magdalen's Bank.

It is high water all along this coast at half past 10. The flood sets strong into the river of Isigny.

From 2 leagues west of the river of Caen to the river of Isigny, the land is of a moderate height, and may be seen 6 or 7 leagues off. Above 6 leagues from the river of Caen, and 4 from that of Isigny, is a town of fishermen, called Port en Bessin; there is a number of boats, which are mounted on the beach with capsterns. Above this place, a little within land, you see two woods of lofty trees, which appear like two little mountains, and render this coast easy to be distinguished.

LA HOUGUE, or LA HOCUE.

From the Isles St. Marcou to Cape Barfleur, the course is N N W nearly 4 leagues: between them lies the road of La Hougue, a bight which enters pretty far within land to the westward, and affords anchorage, where one may ride safe from the south, S W, west, and even other winds, as far as the north; but the S E, east, and N E winds bring in a very great swell. This road is said to be one of the best in the Channel; the anchorage is in 5, 6, 7, 8, and 9 fathoms at low water; the hold very good, the ground being

sand and clay ; and the swell in the winds you are exposed to is never so strong as that ships should be driven from their anchors, if the cables are good. About half way between the Isles St. Marcou and Cape Barfleur is the port of La Hougue, whose village is called St. Vaast ; it admits ships of 12 or 15 feet draught. The entrance is along the land on the north side, which is always chosen, because of some rocks which are in the south passage. The harbour is dry every tide ; it is sheltered from all winds except the east and S E, to which it lies quite open. In this harbour vessels meeting with contrary winds in the Channel find shelter, and may wait safely for favourable weather ; they come in and go out with any wind, and lie secure on a bottom of clay from all winds between W S W and north, and between north and S S W, nor is the sea ever rough, the harbour being well covered.

Half way between Cape Barfleur and the Isles St. Marcou, directly in the fair-way, lies a little bank, called Le Banc de Fer (the iron bank) which at low water, spring tides, has only 2 fathoms water on it. Between La Hougue and Cape Barfleur are several rocks, that stretch about a quarter of a league in the sea, and are to be avoided.

The tides are N N W and S S E, in the road and off at sea ; but near the land, it is high water from half after 7 to 8 o'clock.

The land from the river Isigny to Cape Barfleur is very low on the shore ; but about a league up the country it is all a high land. Directly above La Hougue, on the highest hill, is a large church, called La Pernelle, which is a good mark for distinguishing this coast.

CAPE BARFLEUR.

From Cap la Heve to Cape Barfleur the course is 17 and a half leagues, W by N ; and from Cape Antifer to Cape Barfleur 18 leagues west nearly. When you put to sea from Havre de Grace, you are to steer W N W, and even take more on the north if it be night, because of the rocks that lie off Cape Barfleur, and of the surges which bear on the shore when you are near it. And when you set sail from Cape Barfleur for Havre de Grace, in the night, or in foggy weather, you are to take no less compass than E S E, often heaving the lead, and still keeping in 16 or 18 fathoms water, if it be possible.

The ground in all that course is small red, grey, and black pebbles, like small beans, with very little sand.

Cape Barfleur is a very low and long piece of land, with a town of that name, which has a small harbour on the S E side, dry at every tide, and fit only for vessels of 9 or 10 feet draught. It is easy to enter, for it needs no more than to keep in mid-channel. In coming from the west, avoid passing too near Cape Barfleur, because of the rocks which extend along the coast above a mile into the sea.

The moon in the S E makes high water here; and in the S S E, in the offing.

The tides are very rapid round this Cape, and their current causes great spoutings, which sometimes you would take for breakers. This is called the Race of Barfleur.

GRANVILLE ROCK.

To the N E of Cape Barfleur, about 2 leagues, lies Granville Rock, on which there is no more than 7 or 8 feet at low water. The chart of Blacu, in 1630, is the first in which notice has been taken of this rock, and Du Bocage is likewise the first who gave us the depth of water upon it. Bellin, the royal hydrographer of France, suppressed it in his chart of the Channel, published in 1749, misled probably by the common report, which declared that danger imaginary. Mr. De Gaulle vindicated, in his charts published in 1776, the veracity of Blacu and Du Bocage. "The Granville Rock," says he, "which lies near Barfleur, and whose existence appears uncertain to several mariners who have had no occasion of being acquainted with it, has been placed in this chart, and in that of the light-houses which I have caused to be engraved by order of the Chamber of Commerce, from the bearings communicated to me by mariners of the greatest repute, and from a judicial report made to the Admiralty of Havre, the 25th of April, 1771. Besides the harm is not great in taking heed of an uncertain danger; but I should be to blame had I suppressed it, in case that danger should exist, as we have room to believe its existence."

CAPE BARFLEUR LIGHT-HOUSE.

On Cape Barfleur stands the fourth of the light-houses erected by the Chamber of Commerce of Rouen, in 1775, three of which have been already described.

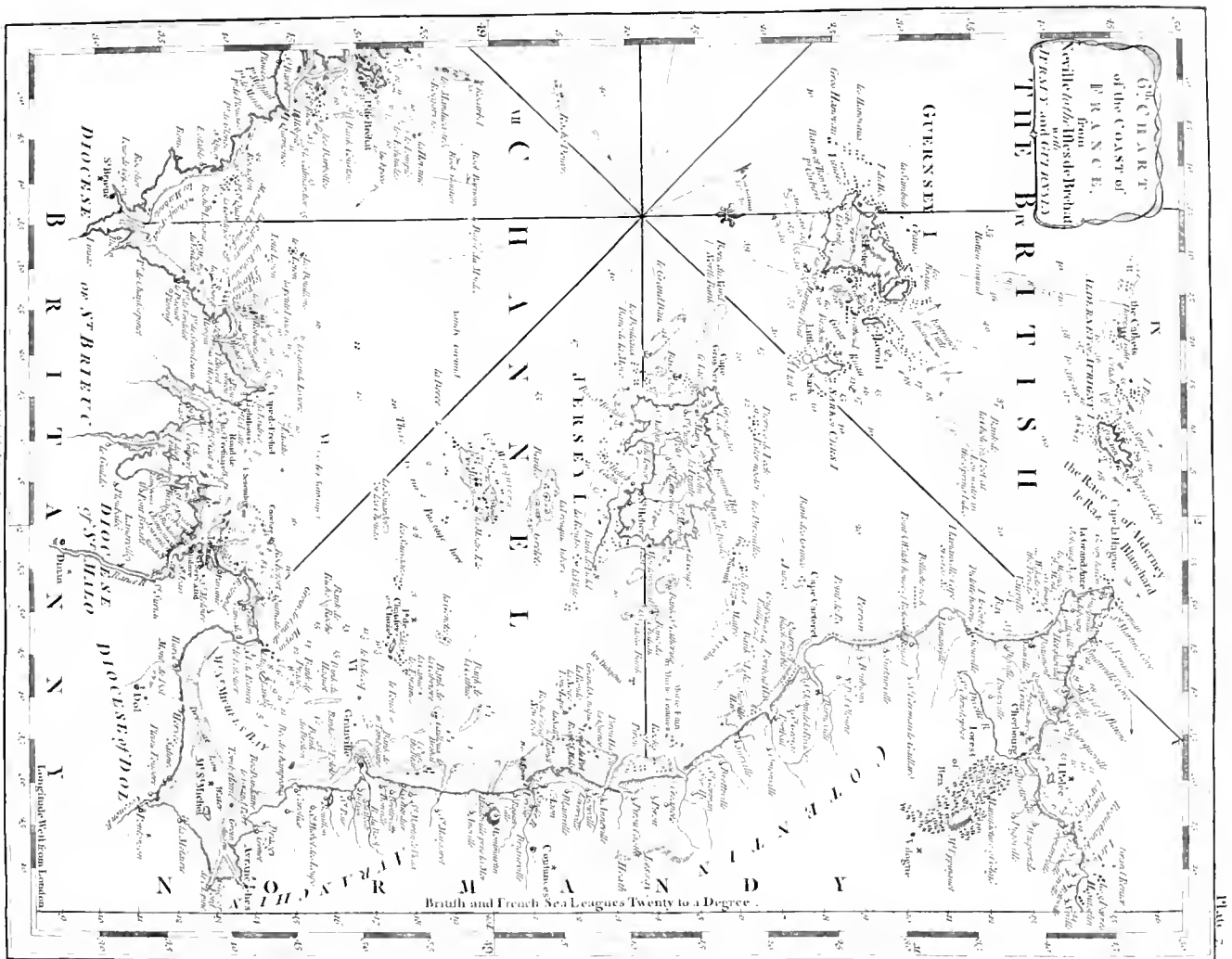
“ This light-house, situated on the point of the rock which forms Cape Gatteville, and level with the surface of the water, is raised on a base, in order to preserve the foot of it from the breaking of the sea. From the foundation of this base the body of the light-house is 88 feet, and the iron lanthorn which contains the fire, is 15 feet high. The point of Cape Gatteville towards the sea, is near a quarter of a league from Barfleur to the north, forming a very low rocky point, running into the sea about 300 fathoms, and in a line with the steeple of the parish church of Gatteville, which stands on the summit of the coast. All the neighbouring coast is very rocky, of a kind of granite, of which the tower is built.”

INSTRUCTIONS for the FOUR LIGHT-HOUSES of NORMANDY.

“ The respective positions of the Four Light-houses is such, that supposing a vessel coming from the north, and desirous to come into Havre, they will see immediately the fire of Cape Lailly, which, in fine weather, they can keep sight of till they catch the fires of La Heve ; and ships coming out of Havre to go down the Channel, will not be long, after they lose sight of the said fires of La Heve, before they perceive that of Barfleur ; or, in a word, ships coming from the sea, who would go either into Havre or Dieppe, after they see the three fires on the Caskets, will presently perceive the fire of Barfleur, which will direct them to the sight of the two fires of La Heve, if they are going to Havre, or to the fire of Lailly if they are going to Dieppe.”

To these general instructions given by the Chamber of Commerce, the following ones have been added by Mons. De Gaulle :

“ The position of the fires of La Heve is N N E $2^{\circ} 30'$ N, and S S W $2^{\circ} 30'$ S, true north, from which it results, that being in the north quarter, you never can see them in a line : therefore, when sailing in the Channel, if you should perceive a fire, being single to the southward, without having pre-



viously seen the land, it cannot be any other but that of Barfleur, or the fire of Lailly; and whereas the mistake should be very dangerous, it will be proper not to steer your course before you have sounded, to ascertain the place where you are, remembering that at an equal distance from the land, you have much deeper water about Barfleur than near Lailly. From N W to north of Barfleur light-house, at 5 or 6 leagues distance, you find between 35 and 40 fathoms water, rotten ground, with a rebounding lead. Three or 4 leagues from the same light-house, you have between 28 and 30 fathoms, coarse gravel; and very near the shore, there are between 20 and 22 fathoms, coarse brown sand. But at Lailly, at the same distance of 5 or 6 leagues, from the N W to the N E of the light-house, you will have only from 20 to 24 fathoms water, mixed ground, with pieces of reddish rocks, shells, gravel, and pebbles of various colours; and nearer to the shore, between 2 and 4 leagues from the said light-house, you will find 18 and 20 fathoms, same ground as before. You may stand in 15 or 16 fathoms water to the fire of Lailly; but it should not be proper to approach the shore nearer than that depth.

“ A ship coming from the westward, and who has made herself sure of the fire of Barfleur, is not to approach it nearer than 22 or 20 fathoms water; and if she is bound to Havre or to the river Seine, and that, after having descried the two fires of La Heve, she should be obliged to make tacks from north to south, either to wait for daylight, or for the tide, she is to come no nearer the south land than 15 or 14 fathoms water (this is to be understood equally for the day-time) Likewise when at the mouth of the Seine, you are not to bring the two fires of Lailly in one line, unless two-thirds of the flood at least are run.

C A P E L E V Y.

From Cape Barfleur to Cape Levy the land bears west about $3\frac{1}{2}$ leagues. Between are a number of rocks under water, and among them those called the Three Stones, which are half a league from the shore, so that it is not safe to approach too near the land. Eastward of Cape Levy is another rock called the Great Reynier, which lies a mile and a half farther

than the rest. In sailing along this coast, if you keep the great mountain above Cherbourg clear of Cape Levy, you will pass wide of all those rocks. Cape Levy makes a great cove or bight on the western side, which affords anchorage, and a shelter from the east, S E, and S W winds; you anchor in 6 and 7 fathoms' water, sandy ground.

The tides here are from half after 7 to 8 o'clock, but in the offing at half after 10, as they are all along the coast as far as St. Germain, or Cape la Hague.

CHERBOURG.

From Cape Levy to Cherbourg the course is two leagues S W. Near Cherbourg, about 2 miles N E of the town, is a small rocky island, called L'Isle Pelée (bald island) which extends about 800 yards in length, from N N W to S S E, and 600 in breadth, from E N E to W N W. It is almost always above water, unless at very high tides, and then there are two heads which are never covered, so that they may very well be avoided. It is very safe on the side towards the sea; but there is no passing from it to the land, except at high water with small barks, but not with a ship. The Road of Cherbourg lies directly before the town, between this island on the east and Hommet Point on the west side, and has 6, 7, and 8 fathoms water, fine sand, and the hold very good. It is sheltered against winds from the E S E point to the N W; but is exposed to the east, N E, and north winds. N W of the Road of Cherbourg is the point of a rock under water, which reaches a cable's length in the sea; this point is called Le Hommet.

From Hommet Point to Cape la Hague, the coast runs W N W above 4 leagues, having at about 2 miles from the point, a head of rocks called Point Querqueville, and 3 miles farther, another rocky head called Raz de Baune, which runs half a league into the sea. Cape la Hague is also called Point St. Germain, because of the church of St. Germain situated upon it. It is all low land near the sea; but half a league within the country it is high land, on which appear several churches and houses. Half way from Cherbourg to Cape la Hague is a great cove, called La Fosse d'Omonville, where a ship may ride secure from almost all winds, for there are rocks towards the

sea on which you may moor, while you cast anchor on the land side. This road will only serve three middling ships; besides, the rocks at the bottom being very apt to cut the cables, it is very seldom visited.

The tides are here as at Cherbourg; the flood sets along the shore E S E, and the ebb the contrary way.

CAPE LA HAGUE.

This cape is often, but very improperly, named Cape la Hogue; under it are several covered rocks, which extend a quarter of a league into the sea due N W, whence it is not safe to approach this point within at least half a league. Cape la Hague makes the eastern side of the Raz Blanchard, or Race of Alderney, as the east extreme of the Isle of Alderney is forming the western; from one to the other the channel is about $2\frac{1}{2}$ leagues wide. At the eastern point of Alderney island several rocks lie under water, but not reaching so far into the sea as those of Cape la Hague; wherefore those who pass through the Raz Blanchard steer about mid-channel, or nearer to Alderney than to Cape la Hague.

The tides are extremely strong in this passage, and set S S E and N N W; 2 miles north of the Race, they set S E $\frac{1}{4}$ S, and N W $\frac{1}{4}$ N; and in the southern part of it N E and S W; the swiftness of this current in spring tides is about two leagues an hour.

ISLES of JERSEY, GUERNSEY, ALDERNEY, &c. by Captain Dobree.

ALDERNEY, with the RACE of ALDERNEY, and the PASSAGE AU SINGE.

The island of Alderney* (called Aurigny by the French) lies near 3 leagues west of Cape la Hague, about 5 miles in length and 2 in breadth.

* Near this island in the night between the 4th and 5th of October, 1744, perished Admiral Balchin, in the Victory of 110 guns and 1100 men. This ship had been separated by a storm from the fleet under the command of the admiral, and sunk on the Alderney Rocks: parts of the wreck were found by the people of Alderney, who gave also an account that they heard in the night the discharge of near a hundred guns, signals of distress, which, on account of the boisterous sea, they were unable to obey.

On the north and west it is surrounded with rocks, but the east side is pretty clean, as well as the south part, on which there is a place called the Fort, consisting of a battery that commands the little port of Longy.

Due south from Alderney about 2 leagues, and near 3 from the isle of Sark, lies a bank, called La Chole, (from the word shoal) which has no more than 12 feet at low water, spring tides. It is situated in the middle of the passage of the Race, in a straight line with the isle of Sark : it is two leagues long, N E and S W, but very narrow. The marks for the middle of the bank, are Alderney Mill north, and the Caskets N W.

West of Alderney lies a channel, about a mile wide, called Passage au Singe, (ape's passage) between the western point of the island, and the isle of Buron. There are some rocks near Alderney, of which the furthest off, called Corbet, may be approached within pistol shot, as well as the isle Buron. To the S W of Buron is Ortach, a huge Rock, close to which you have 14 and 15 fathoms water ; and south of this, easterly, at the distance of two large miles, lies the Pierre au Wrach, (the wreck stone) which requires great caution. It is of the size and in the form of a boat, but appears only at low water, spring tides ; you find 15 and 16 fathoms water close to it.

The C A S K E T S.

The Caskets lie west of Ortach, at the distance of 3 or 4 miles : they are a cluster of Rocks, some above the sea, and the greatest part under water. On the largest of them stand Three Light-houses, in the form of a triangle, which may be seen 5 or 6 miles off, in a dark night, those lights bear westward of Alderney about 7 miles, of Cape la Hague 6 leagues, and from Guernsey 5 leagues N by E $\frac{1}{2}$ E. A ship may pass between the Caskets and Ortach, keeping nearest to Ortach ; this channel is good, but in case of a calm, the variety of tides makes it hazardous ; for between the Caskets and Guernsey, the tides run very strong, and make the whole round of the compass in 12 hours.

In running along the French coast from the Caskets to Cape la Hague, you must haul out from the Caskets N E by N 3 or 4 leagues, in order to avoid the rocks that lie to the westward of Alderney, and then steer again east for the Cape.

ISLE OF GUERNSEY.

The Isle of Guernsey lies to the south-westward of Alderney, above 5 leagues, and near the same distance from the Caskets S S W $\frac{1}{2}$ W. It is high land on the southern side, which lowers gradually towards the north. It is encompassed with rocks almost on every side; the most remarkable clusters are to the westward the Hanovaux; to the northward the Brayes, with many others; and to the eastward the Isles of Herm, Jethou, Sark, &c. surrounded themselves with numberless rocks. The town of St. Peter stands on the eastern coast, and has a port between two stone piers 35 feet high, forming an entrance 100 feet wide at the top, and 68 at the surface of the sea.

The sea rises here at spring tides, to 28 and 30 feet, and not to above 12 or 14 at neap tides; it flows, at full and change, E and W, or six hours. The roads are on the eastern side, and there are two channels to come from the westward into them, called the Little and the Great Russel.

I. The LITTLE RUSSEL.

This Channel, called also the Little Ruau, lies between the Isles of Guernsey and Herm. In coming in from the north, or from the west, you may stand away to the east, as if in quest of the Amphroques, observing not to come nearer than a mile to the Brayes, which lie to the N E point of Guernsey, and when you open St. Martin's or the S E point of the island, a sail's breadth westward of Brehon, (a rock with a stone pyramid, 20 feet high, between Herm and Guernsey) you are well prepared for entering the Little Russel.—N. B. you must not approach too near the Rocks called Les Angloises, or Flabougeres, which lie S E of the Brayes; and, to avoid falling on them, you must keep the Town Church open to the east side of Wall Castle.

But if you come from the Race of Alderney, you are not to approach the Amphroques nearer than $\frac{1}{2}$ a league, keeping the Church of Catel open a sail's breadth to the N W of Wall Castle; by this means you may avoid the Plattebouée, a sunken Rock to the N W of the great Amphroque: continuing that course till you have St. Martin's Point open a sail's breadth westward of Brehon, you may boldly run in to the Little Russel, till you are passed

beyond a round Rock a little above water, called La Rousse, by which, to avoid Roustel, you steer pretty close, leaving it on your larboard hand. After this, keeping Longue Pierre (long stone) open a great sail's breadth, with the S W of La Rousse, and keeping also St. Martin's Point open a sail's breadth with the western foot of Brehon, you avoid the rocks of the Grune au Rouge, which lie under water, and are but seldom seen. Steering this course you will have brought Brehon with Crevichon S E and N W, then you are past the dangers of the Grune au Rouge, and may run for the Piers of Guernsey, observing however, to keep the end of the south Pier in a line with Captain John Tuper's house, in order to avoid the Rocks called the Refées and Buoys Agenor.

N. B. The Longue Pierre is a rock always above water, whose E S E point appears like a sail; it lies 2 miles E N E from La Rousse.—Roustel is the most dangerous Rock in the Little Russel; it lies 500 yards W N W from Rousse, and is never seen but at half ebb. About 100 yards to the N E of Roustel, there is a sunken Rock, which you must avoid very carefully, and therefore you ought never to come nearer than that distance to Roustel.

When you are entered into the Little Russel, between La Rousse and Roustel, and a contrary wind obliges you to luff in order to gain the Road, if you bear west, you must not bring Brehonnet on St. Martin's Point; for, in such a case, you would run upon Roustel; and if your course lies eastward, you must not bring Brehon on St. Martin's Point, which would carry you on the Grenettes, or Genettes (rocks under water, between La Rousse and Brehon); but you must always keep St. Martin's Point open with, or clear of, the west of Brehon, a sail's breadth.

In the Little Russel you have 5 or 6 fathoms at low water, neap tides: it ought to be observed, that the flood never begins to run in this channel (as well as in the Great Russel) till the sea is at half its height, nor the ebb begins its retreat till the sea is half fallen.

II. The GREAT RUSSEL.

The Great Russel lies between the Isles of Herm. This channel is convenient for ships of all sorts, and much less embarrassed than the Little Russel.

When you come from the northward, or from the Race of Alderney, your course is S W, till you arrive at the entrance of the Channel. There you see, to the east of the Isle of Herm, a stone named Noire Pute, (black whore) at the distance of a large quarter of a league; you leave it on the starboard side, and may approach it within 500 yards. When you are past this rock, you must bring St. Mary's Point on the Goubiniere, another Rock which lies S S W of Jethou, $\frac{1}{2}$ a mile off. By this means you avoid all the dangers near the Isle of Herm and Jethou.

Once beyond Goubiniere, continue the same course S S W till you have brought St. Martin's Church on the middle of the Bay of Formain; then you may steer towards the port of Guernsey, till Brehon stands north easterly, or till you have got the Little Guard House, (which stands at the end of the south Pier) open to the S E of Cornet Castle; when this is done you are sure of having avoided the two sunken rocks, called Les Têtes d'aval, (the lower heads) and may boldly enter the Road.

You may likewise, instead of the above course, steer along by the Isle of Sark, at the distance of 600 yards. You meet with no dangers but such as are above water and never covered, even at the Equinoxes, except a sunken rock, called the Givaud; but you must steer almost close to the western point of Brecqhou, (or L'Isle aux Marchands) to meet with this rock, so that it is not at all dangerous. You may tack about, and alter the course for near half a league, between the Isle of Sark and the dangers before described, which lie between Herm and Jethou.

III. Coming by the SOUTH SIDE of GUERNSEY.

When you are to the N W of Guernsey, and intend to pass by the south side of the island, you must not come too near the western part, for fear of several rocks that lie wide of it: by bringing the house on the Isle of Lihou in one with the Guard House on Pleinmont, you avoid the Grunes and the Sambule, two sunken rocks, the most dangerous in this passage; you leave them on your larboard hand, and steer towards the Hanovaux, (Hanways.) These are a long chain of rocks always above water, half a league from land, and no passage between; you pass 3 miles wide of them, leaving them also on your larboard side.

When abreast of these rocks, steer S E till you have brought the windmill on Sark, a great sail's breadth open of the south point of Guernsey ; proceed in that direction, approaching St. Martin's Point at the distance of less than a mile, till Wall Church is in one with Cornet Castle, (which church is above a league to the north-westward of the Castle) but large vessels must open it to the eastward of the castle ; though either way in you have nothing to fear from the Longue Pierre, which is a rock near St. Martin's Point, and arrive safe in the road.

You may anchor along the south side of Guernsey in 30 and 35 fathoms water, good ground, two miles from the land ; nearer, the ground is not so good, except nigh St. Martin's Point, where you may anchor within a mile. At the eastern part of St. Martin's Point are some Rocks, which are not to be trusted ; however as they lie very near the land there is no danger.

When you sail to the south side of Guernsey, and the sea begins to rise, the flood runs along the shore to St. Martin's Point, near Longue Pierre, and there it begins to set to the northward till four hours after. Therefore care must be taken, that this first flood should not carry you into the Great Russel, which may happen in a calm.

IV. The GREAT and LITTLE ROADS.

The Great Road extends from St. Martin's Point, as far as one mile S S W of Brehon. It affords 25, 20, 18, 16, and down to $10\frac{1}{2}$ fathoms water, very good bottom, half a mile from Cornet Castle, observing only to have the Town Church open to the north of the said Castle.

N. B. If you open the South Pier Head with Cornet Castle, and bring St. Martin's Point S W, you anchor in the N E part in 11 fathoms, good ground. About a mile, or a mile and $\frac{1}{2}$ from St. Martin's Point, you may stop tide in 30 or 35 fathoms, clean bottom.

It must be observed likewise, that to the south of the Road, lies a shoal called the Great Bank, on which there are but 3 fathoms water ; but this happens only twice in the year, in March and September. This bank lies right off Formain Bay, a mile from the shore, and is about a mile in length, stretching N by E and S by W.

ISLE of JERSEY.

Jersey is 3 leagues and a half in length from east to west, and above 2 leagues in breadth. Its N W point lies S E by S from St. Martin's Point in Guernsey, about 5 or 6 leagues; its S W point 11 leagues N from St. Malo, and its distance from the coast of Normandy is 4 leagues at most, and with a good wind, you pass from one to the other in two hours. This island, like Guernsey, is surrounded with rocks, which render the access both difficult and dangerous.

St. Helier is the principal town in Jersey; it is situated in the bay St. Aubin, almost in the middle of the southern side; and has the best road in the whole island, but yet dangerous on account of the numerous rocks scattered round the entrance. The town and bay are defended by several batteries, but chiefly by Castle Elizabeth, built in the bay, on a large rock, to which you may go at low water quite dry. With northerly winds you may anchor about a league without this bay in 15 and 20 fathoms water, clear of any danger from the rocks.

The west side of Jersey forms another large bay, called St. Owen's Bay, wherein large vessels may anchor in 12 and 15 fathoms water, sheltered from westerly winds. Westward of this bay, about 1 league and $\frac{1}{2}$, is a bank, called the Great Bank, extending 4 or 5 miles N W and S E, where you may cast anchor in 12 fathoms.

On the eastern part is the Bay St. Catharine, where the anchorage and the ho'd are good. St. Clement's Point, (the S E point of the island) is to the south of this road, and must not be approached nearer than a large league, because of a ledge of rocks, called Banc de Violet, which runs from it towards the S E.

The tides set very strong through the rocks, and run, as we have already observed in speaking of the other islands, the whole circuit of the compass in 12 hours; a N by E and S by W moon makes the highest tides about these places.

The two most remarkable ledges of rocks, on the north side of Jersey, are the Pater Nosters, and the Ecceho Rocks; the first lie about 5 miles off

the N W point, and stretch above a league east and west. The others are 5 or 6 miles from the N E point, extending E S E, and N N W, between 2 and 3 leagues. Both the ledges consist of a multitude of rocks between, several of which are above water.

THE MINQUIERS.

To the south of Jersey, between 3 and 4 leagues S $\frac{1}{2}$ W from St. Clement's Point, and about 5 N by E from Cape Frehel in Brittany, are the Minquiers, a chain of rocks 3 full leagues in length, E N E and W N W, and above a league in breadth. They are very dangerous, for the waves drive right across them as you come from the west. The greatest part of these rocks are under water; those which shew themselves are called Les Maisons. The westernmost of the Minquiers, called Le Derée, are always above water, and appear detached from the rest.

Continuation of the FRENCH COAST.

GRAND ANCE.

A large league to the south of Cape la Hague is a very good road, called La Grande Ance (the great cove), or Ance de Vauville, where you may cast anchor in 4 or 5 fathoms water, and be sheltered from the N E, east, and S E winds.

NEZ DE CARTERET, or CARTERET NESS.

From Cape la Hague to Carteret Ness the land runs S $\frac{1}{4}$ E $7\frac{1}{2}$ leagues. This shore is very safe, and one may cast anchor all along, and be sheltered as in the Grand Ance; inland you see several churches and mills, and it is all high double land.

PORTBAIL.

About 5 miles S E of Carteret is another very good road, called Portbail, which affords a shelter from the N E and S E winds, in 15 or 16 fathoms water.

ROCKS of ECREHO.

Six or 7 miles S W from Portbail, and about the same distance S W by W from Carteret, are a number of rocks, called Ecreho, always above water, and encompassed with other rocks, mostly under water. They are about 1 league in length from S E to N W, and pretty near 2 miles in breadth; several banks, called Banks de L'Ecreviere, extend from their S E end in a S E direction, about 4 miles. There is a passage between all these and the coast of Normandy, by steering near the land; also between them and Jersey, by steering near the island. In the middle of the passage along the coast lie the Bancs Félés, in the same direction with those of L'Ecreviere.

LE BŒUF.

About $1\frac{1}{2}$ league to the southward of L'Ecreviere banks, is a large rock above water, named Le Bœuf, from whence a range of rocks under water, called La Lignée du Bœuf, extends near a league to the S W.

The tides are very great between all these rocks, and there is no determining with certainty their setting, because of their separation among the several ledges.

The moon in the E N E makes here high water, which sinks 7 fathoms perpendicular; this makes it very dangerous to those unacquainted with the channels.

GRANVILLE.

Granville lies above 11 leagues S by E $\frac{1}{2}$ E from Cape Carteret. In this passage you meet with several rocks above water, and some shoals, which are to be avoided. The town stands on the top of a steep and rugged rock almost surrounded by the sea. The harbour, which is dry every tide, lies E N E and W S W, at the foot of the rock; it is formed by a jetty built of loose stones, about 180 yards in length. There is no road at Granville, but ships generally anchor at Cape Lihou, on the west end of the rock, where the ground is good.

The moon in the eastern and western points makes high water at Granville, as it does also all along that coast as far as Cancalle, and even to St. Malo; the sea here rises very fast.

All the country between Carteret and Granville is very high land, and affords a prospect of numbers of houses and mills, interspersed with lofty trees.

ISLE DE CHAUSEY, or CHOSÉ.

About 3 leagues westward of Granville is situated the little Isle of Chausey, in the middle of a range of rocks, 3 miles in length from east to west. The anchorage is at the south side of the island near a fort, which was destroyed by Commodore (now Lord) Howe in 1756; and the people of St. Malo load there with stones for building their houses.

MOUNT St. MICHAEL.

Four leagues S by E $\frac{1}{2}$ E from Granville stands Mount St. Michael, which is a huge rock, at the distance of a league from the shore: on it is a little fortified town, with an abbey of the same name. This place is frequented only by pilgrims, and is inaccessible to ships; it admits only small craft that ply in the river of Avranches, which passes near it. The mount stands dry every tide, and those who go thither are not able to pass but at low water, with guides who conduct them to avoid the quicksands.

The tide rises here so quick, that if any one should happen to be in the way between this rock and the continent when the flood is coming, 5 miles off, it will be impossible for him to escape, even with the swiftest horse.

CANCALLE.

From Granville to the Point or Grouin of Cancalle the course is S W near 4 leagues. About one league east of the said point of Cancalle are three big rocks, under which you may cast anchor, in 8 or 10 fathoms water. And N E of the town are two other rocks, within which you may anchor in 5 or 6 fathoms. Coming from the sea, and bound to Cancalle, you pass between the three first rocks and the point, and find in that passage no less than 8 or 9 fathoms water.

The tides are here east and west.

From Cancalle Point the coast extends two leagues to the westward, when you meet with a Cape or Point, on which are a multitude of rocks, both above and under water. This Point is about a league to the N E of St. Malo.







St. MALO.

The city of St. Malo stands in the middle of the sea upon a rocky island, which is now joined with the main land by means of a causeway: it is at the bottom of a very deep bay, full of rocks above and below water, which project at least $\frac{3}{4}$ of a league into the sea, they extend from all parts of the shore, besides a number of isles, which almost bar the entrance. There are, however, four passages by which the harbour may be entered, with the help of the following marks:

I. LA CONCHÉE.

This passage, which is the easternmost of all, is distinguished by a high white rock, called the Conchée to the eastward of Sezembre, a little island about 3 miles to the N W of St. Malo; this rock you leave on your starboard side, you steer above the corner of the said city that is nearest to the Grand Bay Rock, which is a big fortified islot near the city on the N W of it. And when you are got within the length of a cable or two from the city, you steer S W, turning about by the Grand Bay and the Little Bay Rocks, another islot close to it on the west side, to come to an anchor in Rance Road under the town.

II. LA PETITE PORTE, or CHANNEL of the LITTLE GATE.

Sezembre is an isle of good height, and has on it a convent and a mill; but they are in a bottom on the south of the island, whence they cannot be seen from the sea. To the west of this isle are two passages, called La Grande Porte, and La Petite Porte; the last is nearest Sezembre. To enter this passage, you bring the end of Sezembre about a good quarter of a league S S E of you, and then you steer south, leaving Sezembre a cable's length on the larboard side; and when you are passed within the end of the island, you see a mast for a beacon on a rock under water, which you leave on the larboard side. As soon as you are passed this beacon, you steer by Little Bay Rock, till you bring the point of the city, or a little tower which stands at the end of the said Point, in a line with St. Servand steeple, keeping this

direction till you come under the city, where you cast anchor in 6 or 7 fathoms water. When you make for this road by the aforesaid marks, you leave the rock called Buron on your larboard side, in passing between it and the Little Bay Rock.

III. LA GRANDE PORTE, or CHANNEL of the GREAT GATE.

When you come from the west, or from Cape de Frehel, and have a mind to enter St. Malo by the Grande Porte, you must steer by Sezembre, leaving it a little on the north till you meet with the following marks, which you must take with you a good quarter of a league before you are at Sezembre, because of the rocks which lie off it. You are to bring a huge Black Rock at the north side of the town, very remarkable, in a line with a Steeple at a great distance on land, called Paramé. You steer by these marks, which are about E $\frac{1}{4}$ N, inclining a little to the east, till you are within the beacon Du Jardin; this is a rock under water at the end of Sezembre, or Petite Porte abovementioned, which you leave on the larboard side: then you bring the little Tower at the end of the town into a line with the Steeple of St. Servand, and steer by these marks till you come within the Bay Rock under the city as aforesaid, always leaving the Buron on your starboard side, when you pass between it and the Little Bay Rock.

IV. PASSAGE DES DÉCOLLÉES.

There is also another entrance along the coast, called the Décollées; but it is very difficult, and frequented by none but small vessels.

LA PIERRE DE RANCE, or RANCE STONE.

At the mouth of the river Rance, called also the river of Dinan, which is the road of St. Malo, is a stone under water, called the Stone of Rance. It is about the middle of the channel, and you may leave it on the starboard or larboard side, as you please; but if you have a mind to go to Solidore, or under the town, it is advisable to take with you a pilot. Ships under the town are left quite dry on the sand, where they are under shelter from all winds.

The tides are east and west.

CAPE FREHEL, and LIGHT-HOUSE.

About 4 leagues W N W of St. Malo is Cape Frehel. It is a very high and steep land, on which stands a remarkable light-house ; at the pitch of the Cape is a thick rock, separated from it but little less than a musquet-shot. Within this Cape, about a league to the E by S, lies another, which forms the entrance of the Bay de la Fresnaye, and is called Point la Latte, from a castle of that name on its extreme point.

BAYE DE LA FRESNAYE.

When you come from Cape Frehel, and are bound to La Fresnaye bay, either to wait for the tide to go up to St. Malo, or to take a pilot, you must range along the coast, leaving it two cables length on your starboard side ; and thus you pursue your course till you are within the castle of La Latte, and have its bridge quite open ; then the castle will bear N N W. This is a very good road, where you anchor in 8 or 9 fathoms, coarse gravel.

The tides there are east and west, as on all the coast as far as Granville.

Between this bay and St. Malo the land forms several creeks, before which you may anchor if necessary.

Three full leagues N W of St. Malo, and N E $\frac{1}{4}$ N of Cape Frehel, is a bank, called Oyster Bank, over which you may pass in 6 or 7 fathoms water.

ISLES DE BRÉHAT.

From Cape Frehel to the north end of the Isles of Bréhat the coast lies W N W 8 leagues ; but you must go more to the north, because of the rocks called Les Bouillons and Le Lejon, which lie in the fair-way near 4 leagues off Cape Frehel, and above 2 leagues from land ; they are for the most part under water.

Between Cape Frehel and Bréhat are the rivers and harbours of St. Brieuc and Benic.

The great isle of Bréhat is about a league in length N N E and S S W. Coming from the east you see on this isle two mills, and a house between them, situated on a mountain ; you may anchor almost quite round the island,

though there are several clusters of rocks above water. The harbour of Bréhat, called La Chambre, (the chamber,) on the south side of the island, is very difficult to enter, on account of the numbers of rocks which are there; and all such as are unacquainted with the place ought not to think of going thither. At the north-eastern point, a small distance from the island, are likewise several dangers under water, which stretch a large league in the sea. About $1\frac{1}{2}$ league N E $\frac{1}{4}$ N is a very dangerous rock under water, named the Horaine.

A large league west of the Isles of Bréhat, and above two leagues wide of the continent, are the rocks called Les Epées (the swords), a great part of which are above water. You may sail quite round them; but between them and the main land are numbers of sunken rocks which are very dangerous.

ROCHE DOUVRE.

About 8 leagues S S W of Guernsey, and $4\frac{1}{2}$ leagues north from Bréhat, are the high rocks called Roche Douvre. Two leagues and a half to the S E of them are those called Barnoui and Gautier, which are also commonly above water. The Roche Douvre rocks are almost all above water, and half way from them to Bréhat lies likewise a sunken rock, called Rocarbel, and never in sight. At high water you may pass over it, but never at low water.

RIVER OF TREGUIER.

Three leagues and a quarter west of Bréhat is the river of Treguier. At the east of the entrance of this river are a number of rocks, as well above as under water: the western side, or that of Port Blanc, has likewise some rocks covered and uncovered.

ISLE TOMÉ.

Two leagues and a half to the west of Port Blanc is the Isle Tomé, round which you may anchor. It is a very good road; and there is also a fine passage between this island and the Seven Isles.

THE SEVEN ISLES.

About a league to the N W of the Isle of Tomé, and above 6 leagues

W $\frac{1}{4}$ N of Bréhat, are situated Les Sept Isles (the seven isles), through which there is no sailing. From the easternmost of these islands there is a rocky bank, at whose extremity, on the south side, a rock, which is always uncovered, becomes a good mark for avoiding the said bank. On the west side of these isles a number of rocks above and under water, ought to make one cautious of approaching too near them.

THE TRIAGONS.

Near $1\frac{1}{2}$ league west of the Seven Isles, and 3 leagues N W $\frac{1}{4}$ N of Lanion river, is a great bank of rocks, named Les Triagons, partly above, but mostly under water. This bank is 1 league $\frac{1}{3}$ in length S E and N W, and near $\frac{1}{2}$ a league in breadth.

The Triagons are the rocks called, in our old charts, the Treacle Pots; there is a channel between them and the shore. About 1 league N W of the Triagons lies a sunken ledge, called La Feuille.

There is a good channel to the south of the Seven Isles, and the Triagons, which is called Perros Channel.

RIVER OF LANION.

From the river of Tréguier to the point of Lanion river, the coast runs westward 5 leagues; you come to it by the land side of Isle Tomé; at the N W point are several rocks, which must be avoided, after which you sail up southward towards the entrance of the river.

On the land off the Seven Isles, by the coast, is a high spire steeple, called Notre Dame de Clarté; which is a very good mark for distinguishing the Seven Isles; and on the land off the Triagons is a high tower, by which it is easily known when you are near them; but this tower is to be seen only in clear weather.

Let all who sail by night, or in winter, from Usbant, or from the passage Du Four, to St. Malo, be careful not to steer more towards the east than E N E, or N E $\frac{1}{4}$ E, till they have the Triagons on their starboard side; for the currents set strongly to the S E upon the Triagons and the Seven Isles.

But by day, and in clear weather there is no danger of coasting too near the land, because you see every danger.

MORLAIX.

Four leagues west of Lanion river is the eastern point of the river of Morlaix, and between both lies the little harbour of St. Jean du Doigt, which is dry every tide. You may pass across the rocks to go to Morlaix, and anchor in 6 or 7 fathoms.

Morlaix is one of the principal harbours of Brittany: to sail into it, when the high rock with two horns, called the Saddle, or the Bull, which lies before the entrance of Lanion river, has been brought to bear east about 3 miles, steer for the northernmost point of land on the east side of the entrance of Morlaix bay, bearing W S W, till you come within a mile of the rocks which lie off that point; then steer S by W for the small island, lying off the point on the east side of the river's entrance. You must leave all the rocks with beacons on the larboard side, and the Reguel Islands with Women's Island on the starboard side. From the small island, off the eastern point, you may proceed up till you are above the point on the other side of the river, and anchor in 6 or 7 fathoms water.

The flood comes from the N W.

St. POL DE LEON.

But if you desire to go to St. Pol de Leon, steer your course directly to the Saddle, or Great Horned Rock, and coast it; and when you come near it, make towards the land. On the shore stands a village called Pempoul, which you may coast; at the east lies the entrance of the river. They are all tide-ports; but between the rocks of Morlaix and the Isle of Bas, there is depth enough at low water to shelter a ship. The coast of St. Pol de Leon is a double land; the church of the city has two high spiry steeples, between which the Isle of Bas appears, and has on it two poles, looking, afar off, like two mills. At the east end of this island is a high craggy rock, which stands by itself; and when you are to the eastward of it you see two spiry steeples, a good way from each other, that belong to Pempoul. You

BRITISH CHANNEL

CHART of the ROAD to BAS with the Entrances of the Rivers of ST. POL and MORLAIX.

Reference
 Sands dry at Low water
 Sands always under water
 Rocks always uncovered
 Rocks dry at Low water in the Spring Tides
 Direction, to avoid the Rocks — Channel

British & French Leagues 40 to a Degree

Published by W. Faden, Chartmaker to the Admiralty, in 1795.

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Published by W. Faden Chartmaker to the Admiralty 1780

have also a prospect of the castle of Torreau, or Torro, which stands on a high rock to the S E, above 2 leagues distant from the point of Isle de Bas. One may go along by the main land across these rocks to the Seven Isles. There is good bottom for anchorage every where, and the coast is all in great bays.

ROCHE BLANCHE.

Five leagues to the north and N $\frac{1}{4}$ E of the isle of Bas lies a rock under water, called Roche Blanche (the white rock.) The Dutch Pilot tells us, that at low sea the top of this rock appears betwixt wind and water; but the fishermen of the isle of Bas have assured me of the contrary, and that there is always water enough for passing all sorts of large ships over them, though in stormy weather the sea breaks much more strongly here than in other places. This rock is distant from Caskets 27 leagues to the N E $\frac{1}{4}$ E, and from the Seven Isles 9 leagues to the E S E.

ISLE DE BAS.

The Isle de Bas about 3 miles in length, from east to west, and one mile in breadth, is separated from the land by a narrow channel, at the eastern end of which lies Roscou, or Roscof; it is a small harbour, which some years ago was made, by the French government, a kind of free port for the exportation of rum brought from their colonies, which was there deposited, and sold to our smugglers. You may enter Roscou by the two ends of the Channel, that is, by the east, and by the west; but the shore of this isle is encumbered with a multitude of rocks above and under water, which render the access to the harbour very difficult.

To enter on the eastern side, after you have passed the Saddle Rock, you must stand towards the shore between the point of the main land, and steer through the middle of the channel, where at high water you have 7 or 8 fathoms, but at low tide there is no passing at all, on account of the multitude of rocks; at high water it is even so dangerous that you ought always to take a pilot. The Dutch chart makes this passage very easy, but experience has convinced me of the contrary. Between the port of Roscou and this end of the Isle de Bas, the coast is all along full of great rocks, which reach as far as the middle of the passage to the Isle de Bas.

The western passage is easier than the eastern. In order to accomplish it, you must approach the end of the isle within cannon-shot, where you perceive a single rock, which stands in about a third of the distance between the end of the isle and the main land. You must steer close by it, and push it with a long oar; it is very safe. This rock is called La Lavandiere (the laundress); and at twice a ship's length from it is another rock under water, called Le Couillon (the testicle). You must pass between this Rock and the Lavandiere, with this last on your starboard side, and the Couillon on your larboard. When you are got within these rocks, you approach a little off the island, taking care in the mean time of two rocks under water which are near the shore; and for which reason it is good to have a man on the mizzen yard to keep watch. These dangers are indeed easily discerned, for the waters are extremely clear in this place. When you are about the middle of the isle you see a great cove, with several houses on it, over-against which you may anchor in 4 fathoms at low water.

The tides here are $W \frac{1}{4} S$, and $E \frac{1}{4} N$.

From the end of the Isle de Bas to the Four the Coast bears E N E and S S W twelve leagues. All along this shore, to half a league off at sea, are nothing but massy rocks, which look like houses. The land is none of the highest, but may be seen 5 or 6 leagues off; you may discern also, as you coast it, numbers of steeples and houses.

BAYE D'ABREVERAK.

About 8 leagues to the west of the Isle de Bas, is Abreverak, which is a very large and good Bay, but very difficult to enter. As I have no perfect knowledge of the marks to be observed for facilitating its entrance, I shall say no more of it.

ROCHERS DU PORSAL.

About a league from Abreverak are situated the Rocks of Porsal. They are almost all under water, and above half a league distant from the land. There is also good anchorage among them, but the entrances are very difficult.

From Porsal to the Four the coast runs W S W about 4 leagues. This land is also of a moderate height, encumbered with a multitude of rocks for

at least a good quarter of a league wide : wherefore those who ply by night along this coast ought not to approach the land within 45 or 50 fathoms of water. The bottom along this shore is a grey sand, with small flints like little nuts, of divers colours.

The moon in the $W \frac{1}{4} S W$, and $W S W$ points, makes here high tide, as also at the Isle of Bas, Morlaix, and St. Pol de Léon. A little off the land the flood tends E N E, and the ebb $W S W$ along the shore.

TIDES and CURRENTS.

Before Calais and Blanc Nez the flood sets from the west quarter to land, afterwards N N E.

Between Blanc Nez and Boulogne the flood sets N by E on shore ; but in the offing N N E.

The highest tide is when the moon is S S E.

Between Boulogne and Dieppe, and before the river Somme, the flood sets the first quarter to the land ; afterwards N E by E, and the ebb S W by W.

Between Dieppe and Cape de Caux off the land the flood sets N E by E, and the ebb S W by W.

From Cape de Caux to Caen the flood sets S S W, and the ebb N N E.

Before the mouth of the river Orne, a S S E moon makes high tides ; but within the harbour of Caen a S by E moon ; and likewise

Before the Isles St. Marcou, la Hougue, Barfleur, Cherbourg, and Cape la Hague.

From Cape la Heve to Barfleur the flood sets by the land E by N, and the ebb W by S ; but more out in the Channel the flood sets E N E, and the ebb W S W.

At Cape la Hague a S by E moon ; and

In the Raz Blanchard, or Alderney Race, as well as between the islands, a N by E, and S by W moon makes high water. The flood sets through the Race N W $\frac{1}{4}$ W, and the ebb S E $\frac{1}{4}$ S.

The tides between the Islands of Guernsey, Jersey, Alderney, and Sark, &c. in the space of 12 hours make the whole tour of the compass ; the moon in the N by E and S by W makes high water.

At Granville, Cancele, and St. Malo, and as far as the Isles of Bréhat the tides rise very swift, and an east or west moon makes high water.

In the Road on the east side of Isle Bréhat the flood sets S S E : between this Isle and Guernsey, as also between the Seven Isles and Guernsey, an E S E and a W S W moon makes high tide.

Between the Seven Isles and the outer Rocks of Morlaix the flood sets S E, but in the offing east and E by N.

At Morlaix and St. Pol de Léon a west and south moon ; but in the offing athwart of these rivers, a S W by W, and a W S W moon makes high tides, and

At the Isle of Bas a W by S moon ; in the offing the flood sets E N E, and the ebb sets W S W, continuing the same course from this island to Ushant.

SOUNDINGS *along the* FRENCH COAST.

From the Straits of Dover to Cape Barfleur, the depth of water, in the middle of the Channel, is from 25 to 30, 35, and 40 fathoms ; sandy ground, and near Barfleur, rocky ground.

From Boulogne to the south of river Somme, at 3 or 4 leagues off the land, from 10 to 15 fathoms ; sand.

Between Tréport and Dieppe, 5 or 6 miles off the shore, from 6 to 10 fathoms ; sand and marl : and farther off, from 16 to 18 fathoms sand mixed with white marl or chalk.

At Cape Lailly, 5 or 6 leagues in the offing, from the N W to the N E of the light-house, from 20 to 24 fathoms ; mixed ground, with pieces of reddish rocks, shells, gravel, and pebbles of various colours ; and nearer to the shore, between 2 and 4 leagues from the light-house, from 18 to 20 fathoms, same ground.

In the Little Road of Havre, from 3 to 4 fathoms ; pebbles and oysters laid on clay ground.

From La Heve to Cape Barfleur, from 18 to 20, and 23 fathoms ; small stones, grey, red, and black, like small beans, with very little sand ; and nearer the land, from 12 to 15 fathoms ; very fine sand.

From N W to north of Barfleur Light-house, 5 or 6 leagues off, between 35 and 40 fathoms; rotten ground, with a rebounding lead. Three or 4 leagues from the said Light-house, between 28 and 30 fathoms; coarse gravel: and very near the shore, between 20 and 22 fathoms; coarse brown sand.

From Cape Barfleur to Cape la Hague, 2 or 3 leagues off land, from 28 to 30 fathoms; coarse gravel and rotten shells: and near La Hague, rocky ground.

Between the Caskets and Cape Barfleur, in the middle of the Channel, from 37 to 38 and 40 fathoms; gravel and rotten shells, very fine; a rebounding lead.

Between Guernsey and the Caskets, from 35 to 40 fathoms; rotten ground.

Off the Caskets, to the S S E, 4 leagues distant, 38 fathoms; white shells: to the W S W $\frac{1}{4}$ S, 4 leagues, 68 fathoms; gravel and very fine rotten shells: this sounding, called the North Pit, is about 2 leagues north of Alderney. From S S E to S by W, 6 leagues distant, 45 fathoms; grey and yellow sand, with several red and black pebbles, and rotten shells.

Within Roche Douvre to St. Malo, from 30 to 35 fathoms; a sandy ground: but between the islands of Jersey, Guernsey, and Sark, the depth is from 25 to 30 fathoms, with various sorts of ground. Between Guernsey and Roche Douvre, 40 fathoms; shining sand. About 10 leagues W $\frac{1}{2}$ S from Guernsey, there is a deep ground, or pit, called the South Pit, in which you have from 72 to 80 fathoms.

Off Guernsey to the Four and the Lizard, in the middle of the Channel, from 45 to 50 fathoms; generally flints and rotten shells, mixed with coarse gravel.

Along the coast of Brittany, from the Seven Isles to the Four, 2 or 3 leagues off land, the depths are from 40 to 45 fathoms; coarse gravel, and small flints of divers colours.

COURSES AND DISTANCES.

- From Blanc Nez to Cape Grisnez, S W 2 leagues.
 From Cape Grisnez to St. John's Road, south $1\frac{1}{4}$ league.
 From St. John's Road to Boulogne, south 2 leagues.
 From Boulogne to Dover, N N W $8\frac{1}{2}$ leagues.
 ————— to the river of Etaples, south $4\frac{1}{2}$ leagues.
 From Etaples to the river Somme, south 6 leagues.
 From the river Somme to Tréport, S W above 4 leagues.
 From Tréport to Dieppe, S W $\frac{1}{2}$ W near 5 leagues.
 From Dieppe to Cape Grisnez, N by E $\frac{3}{4}$ E about 20 leagues.
 ————— to Dover, N $\frac{3}{4}$ E 24 leagues.
 ————— to Beachy Head, N W by N 20 leagues.
 ————— to Brighton, N W above 20 leagues.
 ————— to St. Helen's, N W by W $\frac{1}{2}$ W 32 leagues.
 ————— to Cape Lailly's Light-house, west $2\frac{1}{2}$ leagues.
 From Cape Lailly's Light-house to St. Vallery en Caux, W by S 3 leagues.
 From St. Vallery en Caux to Fécamp, W S W near 5 leagues.
 From Fécamp to Cape de Caux, W S W $2\frac{1}{2}$ leagues.
 From Cape de Caux to Cape la Heve, S S W 4 leagues.
 From Cape la Heve to Havre de Grace, S E $\frac{1}{2}$ E about 1 league.
 ————— to Dover, N N E $\frac{1}{4}$ E $35\frac{1}{2}$ leagues.
 ————— to Beachy Head, N $\frac{1}{2}$ E 25 leagues.
 ————— to St. Helen's, N W by N 28 leagues.
 From Havre de Grace to Honfleur, S E 2 leagues.
 ————— to Touque river, S by W $\frac{1}{4}$ W 3 leagues.
 ————— to the river of Caen, S W $\frac{1}{2}$ W 7 leagues.
 From Honfleur to Touque river, S W by W above $2\frac{1}{2}$ leagues.
 From Touque to St. Sauveur sur Dive, W S W $2\frac{1}{2}$ leagues.
 From St. Sauveur sur Dive to the river of Caen, W S W 2 leagues.

From off the river of Caen to the Isles St. Marcou, W by N nearly, about 12 leagues.

From the Isles St. Marcou to Cape Barfleur, N N W 4 leagues.

From Cape Barfleur to Cape la Heve, W by N $17\frac{1}{2}$ leagues.

————— to Dieppe, E $\frac{3}{4}$ N 30 leagues.

————— to Cape Grisnez, N E by E 43 leagues.

————— to Dover, N E $\frac{1}{3}$ E 44 leagues.

————— to Beachy Head, N E $\frac{1}{2}$ N $28\frac{1}{2}$ leagues.

————— to St. Helen's, N $\frac{1}{2}$ E about 20 leagues.

————— to Cape Levy, west about $3\frac{1}{2}$ leagues.

From Cape Levy to Cherbourg, S W 2 leagues.

From Point Hommet, the westernmost of Cherbourg road, to Cape la Hague, W N W above 4 leagues.

From Cape la Hague to Alderney island, west $2\frac{1}{2}$ leagues.

————— to Portland Bill, the narrowest part of the Channel, N W by N $16\frac{1}{2}$ leagues.

————— to the Start, W by N $\frac{3}{4}$ N 24 leagues.

————— to the Lizard, W $\frac{1}{2}$ N 43 leagues.

————— to Carteret, S $\frac{1}{4}$ E $7\frac{1}{2}$ leagues.

From Carteret to Portbail, S E near 2 leagues.

————— to Granville, S by E $\frac{1}{2}$ E above 11 leagues.

From Granville to the Isle de Chausey, W by N about 3 leagues.

————— to Mount St. Michael, S by E $\frac{1}{2}$ E 4 leagues.

————— to Cancalle Point, S W 4 leagues.

————— to St. Malo, S W by W near 7 leagues.

————— to Jersey, (St. Helier) N W near 10 leagues.

From Jersey, the S W point, to St. Malo, south 11 leagues.

From St. Malo to Cape Frehel, W N W 4 leagues.

From Cape Frehel to the north end of the Isles of Bréhat, W N W above 8 leagues.

From the Isles of Bréhat to the river of Tréguier, west $3\frac{1}{4}$ leagues.

From the river of Tréguier to Isle Tomé, west $2\frac{1}{2}$ leagues.

From Isle Tomé to the Seven Islands, N W 1 league.

From the river of Tréguier to the point of Lanion river, westward 5 leagues.

From Lanion river to the river of Morlaix, westerly near 4 leagues.

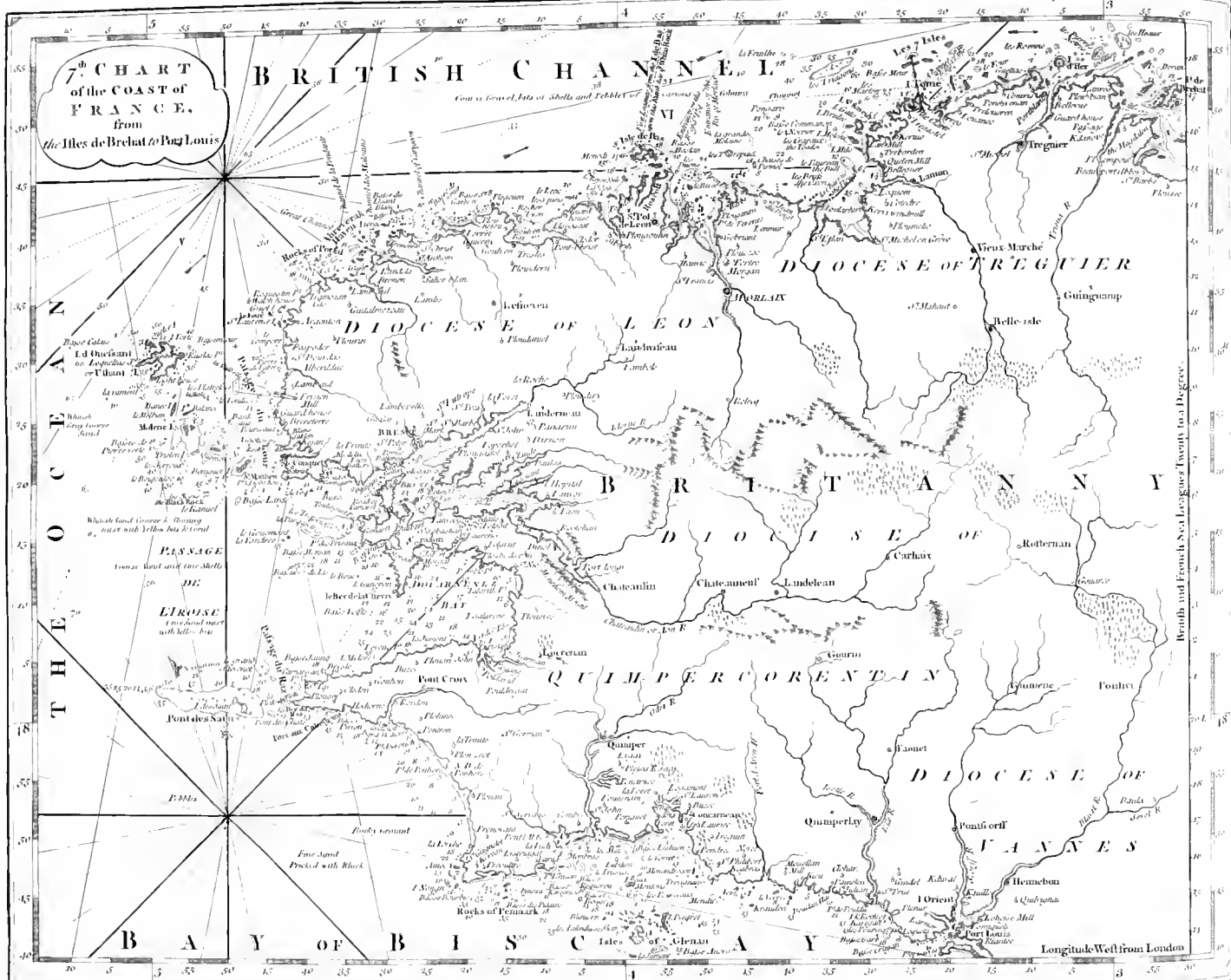
From the west point of Lanion river to the Isle de Bas, west $5\frac{1}{2}$ leagues.

From the Isle de Bas to Abreverk bay, W by S $\frac{1}{2}$ S $7\frac{1}{2}$ leagues.

From Abreverk bay to the Four, S W by W $\frac{3}{4}$ S 3 leagues.

7th CHART
of the COAST of
FRANCE,
from

the Isles de Brehat to Port Louis



Broath and French Sea Leagues Twenty to a Degree.

Longitude West from London

CHAP. III.

Directions for Sailing on the COAST of FRANCE in the ATLANTIC OCEAN.

The FOUR.

THE Four, “the oven,” is situated on the westernmost point of the coast of Bretagne. It is a huge black Rock, never covered, and shaped like an oven, whence it takes its name. This rock is a good $\frac{1}{4}$ league distant from land, and is the chief mark to pass by the Isle of Ouessant, or Ushant, to Brest, or the Raz de Fontenay, most commonly called Passage du Four: it is distant from Ushant 3 or 4 leagues E N E and W S W.

Directions for sailing to the ISLAND of USHANT.

From the Four to the Point of Conquet the land runs 4 good leagues southwards, with a number of rocks above and below water all along the coast. But there are several rocks above water, which are wide of all the rest, and along which you must sail at within one or two cables length, steering south, and S $\frac{1}{4}$ E as far as Point Conquet, to which also you give a birth of one or two cables length, and because of a rock under water, called La Vinotiere, which is directly west of the point. When you have doubled this point, and begin to open the port of Conquet, you must steer farther off, on account of the rocks called Les Mulées, that lie south of Conquet, and stretch a good way out into the sea.

LES PLATRESSES.

Two leagues to the S W $\frac{1}{4}$ S of the Four, and above $2\frac{1}{2}$ N W $\frac{1}{4}$ W of Point Conquet are some very dangerous rocks under water, called the Platresses; they lie about half way between the isles south of Ushant and the main land. The marks when you are turning into this passage are as follows, viz. in your entrance or going out, at Point of Conquet you see two vallies, the westernmost of which is the larger; when you have brought St. Matthew's Cloister

in a line with the little valley, or a little more to the east, you are then near the land, and must therefore tack about and stand to the west ; and when the said Cloister comes a little without Point Conquet, you are immediately to tack about to land, for should it fall two ships lengths to the west of Conquet Point, you are very near the Platresses. There is a mill directly $E\frac{1}{4}S$ of them ; when this mill is bearing S E you are to the north of the Platresses ; and when it bears east, you are to the south of those rocks.

Between the Platresses and the land are also two Rocks under water, having at least from 15 to 18 feet upon them at low water, spring tides, and which have been discovered by the king's ships. The marks for these are, a mill on the land, and a little tower that stands on the brink of the sea : when you have brought these two in a line, you are then directly abreast of the northernmost rock, called La Valbelle ; and when you keep the same mill in one with a high rock, which is the most southerly of all those that appear above water, you are then abreast the southernmost rock, called Le Tendéoc.

West of the Platresses, and about half way between them and the islands south of Ushant, is a high rock, which appears like a ship under sail. This rock is called La Haile, and from it to the isles is no passage, because of the rocks between.

The isles to the S E of Ushant are seven in number ; and the last, which is the southernmost, and called Beniguet, is distant from Ushant 3 leagues S W. It is dangerous sailing about all these isles, both on the eastern and western sides, because of the numbers of rocks that surround them. There are however several channels, but they are known only to the inhabitants of the place. West of these islands, and near a league off at sea, are two banks of Rocks under water, which ought to be avoided by those who sail near the coast.

Four leagues S S E of Ushant and 2 leagues W S W of the south end of Beniguet, is also a bank of rocks under water ; and between this bank and the Noires, two bulky rocks above water ; about a league south of Beniguet Island, you meet with a number of rocks above and below water, which are very dangerous, and should be carefully avoided.

South of the Noires is also a great rocky ledge contiguous to the above rocks, and running near half a league to the south. To the east of the easternmost of these rocks are several small reefs, at the distance of about two cables length. The two rocks which I call the Noires (the black),* because they are better known by that name, the inhabitants have named the Bossebins. They are about a league west, inclining a little to the south of St. Matthew's Point; and Beniguet lies about $\frac{3}{4}$ of a league to the westward of Ochriste Church, which stands half way between Conquet and St. Matthew. To the north of Isle Beniguet is a great rocky Bank, which runs almost half a league northward.

BLANC SABLON.

To the north of Point Conquet is the Bay of Blanc Sablon, where you may anchor in 8, 9, or 10 fathoms water, sandy bottom. Between this bay and the point very near the land, a rock lies under water, named La Petite Vinotiere. This coast must not be approached within a cable's length, nor are you to keep wide of it more than two lengths, because of the Grand Vinotiere, another rock to the west of Point Conquet.

The tides are very strong in this passage, the flood setting north and the ebb south; the moon in the W S W and E N E points makes high water.

ST. MATTHEW'S POINT.

From Point Conquet to St. Matthew's Point the land runs $\frac{3}{4}$ of a league south. Point St. Matthew, known by its light-house, has several rocks above water, called Les Moines (the monks), and wide of them to the S W are others under water, which stretch at least $\frac{1}{4}$ league in the sea; off St. Matthew's there is a passage between the former rocks and the land, but very narrow; and south of Conquet harbour, a ridge of rocks extends at least two or three cables length in the sea to westward: wherefore when you come from the Four, and have doubled Point Conquet, you are immediately to stand off from the western coast to avoid them, as was before directed.

* These are what the English sailors call the Black Rocks.

USHANT, or OUESSANT.

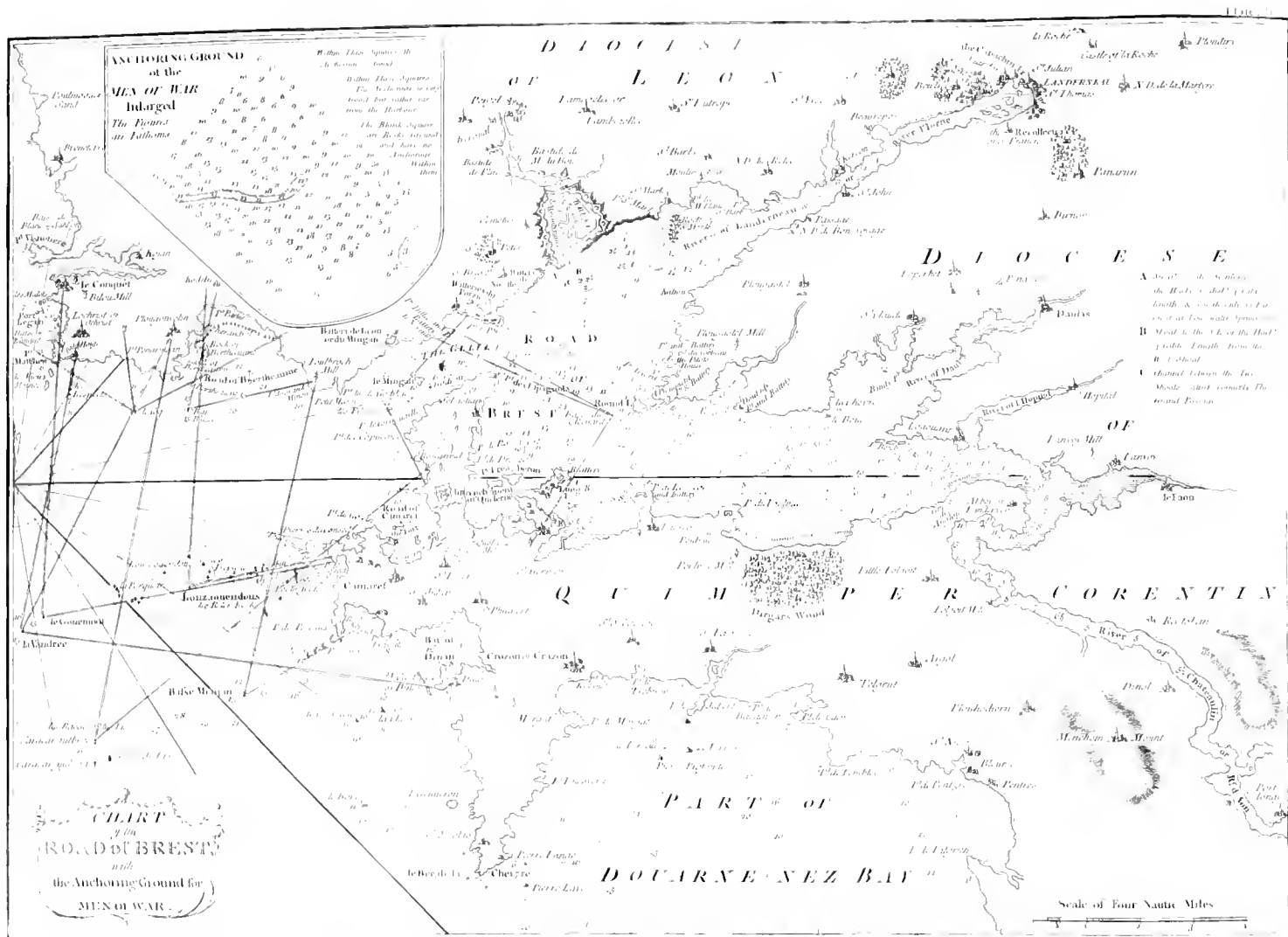
Ushant, 3 leagues distant from the main land of Brittany, is a steep and craggy island almost all round, $1\frac{1}{2}$ league in length N E and S W, and $\frac{3}{4}$ of a league in breadth. It has a harbour on the S W end, but of difficult access, and frequented only by the inhabitants. A light-house stands at the entrance of this harbour, and on the S westernmost point of Ushant. The rest of the island is almost surrounded with rocks, except on the northern side, where there is also anchorage. Between Ushant and another small island, named Queler, which is very near it, a vessel lies sheltered from all winds.

R O C K, called the C O C K.

From St. Matthew's Point to that of Bertheaume the land runs to the east about $1\frac{1}{4}$ league, and, between the two, a good $\frac{1}{4}$ of a league off the shore, is the rock called the Cock. It lies directly to the north of the Parquette, having between it and the land a passage in 10 or 12 fathoms water. In coasting near the land, if you would pass wide of the Parquette, in your course to Brest, you must keep Isle Beniguet clear of Point St. Matthew, so that you may have it in full view, and steer thus till you have brought Point Bertheaume to bear north, after which you may stand to the east.

B U Z E C R O C K.

About $\frac{1}{2}$ a league to the south of Point Bertheaume is the Buzec, a rock very dangerous to large ships at low water. To avoid this rock you must observe that on a small island to the west of Point Bertheaume there is a little tower, or beacon; when you bring it in a line with another tower that stands close to the shore in Bertheaume cove, directly north of the first mark, and till two other small towers, which are on the east point of the great cove of Bertheaume are likewise in a line, you are then upon the said rock of Buzec; but if you do not bring these marks on with each other at the same time, you are passing to the north or south of the said rock. There is also another mark, which is of service only in clear weather: it is a tower on the south shore of Poldavid bay, which must be brought on with a high steeple called



Buzec, from the name of the rock. The anchorage in the road of Bertheaume is from 8, 10, to 12 fathoms; the bottom sand and mud, and you are sheltered from the north, N E, and N W winds.

BAY of BREST.

Those who would enter the Bay of Brest may range along both sides of the coast, and have nothing to fear: but not in the middle of the Channel, on account of the rocks called Les Fillettes, and the Mingan; the former of which are never uncovered but at spring tides; and the other is always above water, except at spring tides.

When you come by the north channel, you range along the north coast without any fear; and in sailing through the south channel you must steer along the south coast, keeping the castle of Brest in full view, clear of Penaleuch point. When you have brought the two steep points of the land which lie east of Camaret into a line, and have also the castle of Brest hid by the point of Penaleuch, you are then upon the Fillettes. It is very dangerous passing between the Mingan and the Fillettes, because of the rocks under water. Within the Bay of Brest you anchor where you please, in 8, 10, or 16 fathoms water, muddy ground.

It is high water there at half an hour after four o'clock, and the sea rises 4 fathoms (French measure) perpendicular.

CAMARET.

Without the Bay of Brest, on the south side, is the road of Camaret, in a great cove, where the anchorage is from 8 to 10 fathoms, on a muddy bottom, and safe from the E S E, south, and S W winds. There is a little harbour in this cove, fit only for small ships, where they are sheltered from all winds; but it is dry every tide.

TOULINGUET ROCKS.

About half a league to the west of Camaret bay, is the cape of that name, off which a number of rocks under water extend above a cable's length to the S W. Without them is a high and big rock, called Toulinguet: you

pass between it and Camaret point, steering close by the rock, and from thence standing away towards the Raz des Saints, or Raz de Fontenay, which is commonly called Passage du Raz (the race channel). You may also pass by the west of Toulinguet, keeping off it two or three ships length. But when you are past the south point of Toulinguet, you must steer two or three cables length to the S E, to avoid the rock Le Bellen; after this you take your course for the Raz.

LA PARQUETTE ROCK.

Above $1\frac{1}{4}$ league to the W S W of Point Camaret, and near $1\frac{3}{4}$ league S S E of Point St. Matthew, lies La Parquette, a rock most commonly above water; when it is covered the sea always breaks over it, unless in an extraordinary calm, or at the time of high water. Between this rock and Toulinguet you meet with nothing but rocks, mostly under water, and though there are several passages between them, they are known only to the inhabitants.

ROCKS called LE GUEMONT and LA VANDRÉE.

About $\frac{3}{4}$ of a league to the W S W of the Parquette stands the rock Le Gouemont, $\frac{1}{2}$ a league due south of Point St. Matthew. About 4 or 5 cables length from this rock to the west, inclining a little to N W is another, named La Vandrée. These two rocks have at least between 12 and 13 feet water upon them at low water, spring tides.

LES BASSES DU LIS and LE MENJAN.

About a league due south of the Parquette are several rocks, named Les Basses (the shoals) du Lis, from the ship Le Lis, which touched upon them; before which accident they were unknown: at low tide they have at least 14 or 15 feet water; and one league to the E S E of this rock is another, named Le Menjan, which lies as deep as the other.

POINTE DES PEZEAUX.

Half a league and more to the south of Point Camaret is situated Pointe des Pezeaux, which consists of steep cliffs. South of this point are 5 or 6

great rocks, which go by the name of Tas de Foin, (or hay-ricks) on account of their similitude to heaps of hay.

LE BEC DE LA CHEVRE.

Two leagues S E $\frac{1}{4}$ S of Point des Pezeaux lies the point called Le Bec de la Chevre (the she-goat's bill); between them lies the bay of Dinan, which is much to the east. Le Bec de la Chevre is forked, and makes two points, from whence project little banks of rocks, which extend a good $\frac{1}{4}$ of a league into the sea.

ROCKS called LE BOUC, LA CHEVRE, and LE CHEVREAU.

Above three quarters of a league N W of Le Bec de la Chevre lies the rock called Le Bouc (the goat); and above half a league north of this, another rock, called La Chevre (the she-goat). These two rocks are always above water. Above half a league almost north of the Goat stands another rock, named Le Chevreau (the kid), which is covered and uncovered every tide.

BAY of POLDAVID, more commonly known by the name of
DOUARNENEZ BAY.

Within Le Bec de la Chevre is the Bay of Douarnenez, which runs up 3 leagues within the land. The road of Poldavid lies at the south-easternmost angle of it, under the town of that name, and the anchorage is in 6, 7, or 8 fathoms water. Poldavid is situated above 3 leagues S E $\frac{1}{4}$ E of Le Bec de la Chevre.

From Poldavid to the Bec du Raz, (the race bill) the coast runs above $6\frac{1}{2}$ leagues to the W $\frac{1}{4}$ N W. The land is all high and steep, and makes a number of points, which project into the sea; and some of them are beset with rocks, which make it dangerous to range too near them.

From Point St. Matthew to the Raz the course is above 6 leagues south.

Due regard must be had to the tides; for at the opening of the bay of Brest the flood sets to the N N E, and the ebb to the S S W.

ROCKS called LA VIEILLE and LA PLATTE.

West of Bec du Raz are a number of high rocks above water, the highest of which, named La Vieille, (the old woman), stands farthest off the land. Half a cable's length farther towards the sea is another rock under water, called La Platte (the flat). When you pass by the Raz you steer wide of all these rocks, leaving the Old Woman two cables length to the landward of you.

ISLE DES SAINS, LE CHATS, and LE CORNET.

One league and a third westward of the Bec du Raz lies the Isle of Sains. It is a very flat spot of land, but however inhabited by fishermen. Three quarters of a league eastward of this isle, bearing a little towards the Old Woman, are two ledges of rocks, of which the nearest to the island is named Le Pont de Chats (the cat's bridge), and the other, Le Cornet (the horn). The passage of the Raz lies between those ledges and the Old Woman, with a depth of 14 or 15 fathoms water; sandy bottom.

The tides are here very strong; the flood bears to the north; the ebb to the south; and the moon in the S W $\frac{1}{4}$ W, and N E $\frac{1}{4}$ E, makes high water.

LIVENET ROCK.

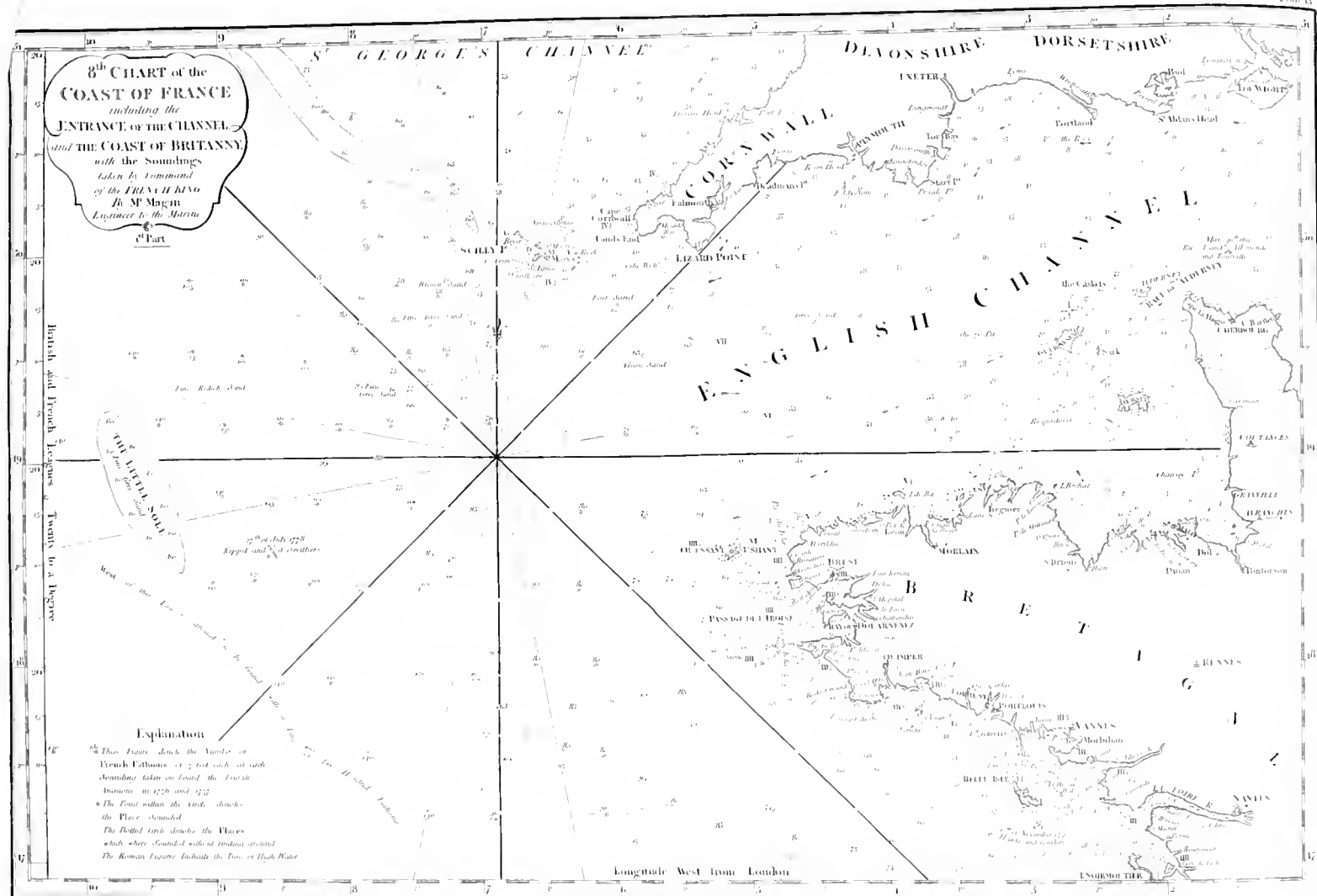
Three quarters of a league N E $\frac{1}{4}$ N off the Isle of Sains, and a good league and half W N W from Bec du Raz, stands a high and big rock, called Livenet, encompassed with a number of other rocks under water, which require great caution in sailing from the Raz, especially as the current sets over them.

STEVENEC ROCK.

In sailing from the south, when you are under a necessity of turning in the Raz, you ought to tack towards the land, because of the current just mentioned. There is no passage between the Livenet and the Isle of Sains on account of the Stevenec.

ROCKS, called LE PONT DE SAINS, or SAINTS

From the Isle of Sains a great ridge, or ledge of rocks runs west and



W $\frac{1}{4}$ S, about 3 leagues into the sea. These rocks are called *Le Pont de Sains*, or *bridge of Saints*; the greatest part of them lie under water, and the other appear above it, according to the tides. The farthest in the offing are distant from *Bec du Raz* 4 leagues westward, bearing a little on the south, and from *Ushant* near 9 leagues, about north and south.

The CHANNEL, called PASSAGE DE L'IROISE.

Between the isles which lie to the south of *Ushant* and the *Raz* is a large channel, about 6 leagues wide, called *L'Iroise*, through which is the common track for ships to and from *Brest*, &c. Its depth is from 40 to 45 fathoms; on a bottom of putrid shells, and mouldering pieces of old rocks.

The tides are here from 4 to $\frac{1}{2}$ an hour after 4 o'clock; the flood sets to the N E, and the ebb to the S W.

TIDES AND CURRENTS.

In the *Passage du Four* the currents are very strong; the flood sets north, and the ebb south; and the highest tides are when the moon is in the W S W, or E N E.

At the opening of the Bay of *Brest* the flood sets N N E, and the ebb S S W.

In the Bay of *Brest* the tides rise 5 fathoms perpendicular, and it is high water at $\frac{1}{2}$ past 4 o'clock.

In the *Passage du Raz* the currents are very strong; the flood sets to the north; the ebb to the south; and the highest tides are when the moon is in the S W $\frac{1}{4}$ W, and N E $\frac{1}{4}$ E.

In the *Passage de l'Iroise* the flood sets to the N E, and the ebb to the S W; and it is generally high tide at 4 o'clock, or $\frac{1}{2}$ an hour after.

SOUNDINGS OFF USHANT.

South South West,

At 7 or 8 leagues you find 55 fathoms, on a bottom of white, red, and yellow sand, intermixed with bits of shells which resemble rind of cheese.

South West $\frac{1}{4}$ South of Ushant,

Between 12 and 13 leagues, from 70 to 75 fathoms; coarse white and red sand, with small worn-out stones.

South West,

From 8 to 9 leagues, 75 fathoms; sand and decayed stones, with bits of rotten shells.

Between 15 and 16 leagues, from 80 to 85 fathoms; the bottom grey sand, intermixed with small slate, and worn-out stones, and some bits of rotten shells.

At 20 leagues, from 95 to 100 fathoms; grey and white sand, intermixed with small chaff like bran, and little decayed stones and pieces of rotten shells.

South West $\frac{1}{4}$ West,

At 7 leagues, 65 fathoms; sand, mixed with bits of thick rotten shells.

At 16 leagues, coarse white and yellow sand, mixed with flat and grey little stones with glittering points.

At 25 leagues, from 100 to 105 fathoms; the bottom is a thick sand, as coarse as small gravel, yellow and white, a little speckled with black, and some small bits of broken shells.

West South West,

At 8 or 9 leagues, from 65 to 70 fathoms; reddish and grey sand, mixed with little decayed stones, and bits of fine shells, and others like parings of cheese.

From 15 to 16 leagues, between 75 and 80 fathoms; white, grey, and yellow sand, with a mixture of bits of fine shells, and of others rotten.

From 23 to 24 leagues, from 90 to 95 fathoms; white and grey sand, pretty coarse, with little bits of rotten white and yellow shells.

At 12 leagues, 70 fathoms; broken shells, mixed with a little sand, and some awl-points.

West $\frac{1}{4}$ South,

At 5 or 6 leagues, 70 fathoms; coarse red sand, and some awl-points, with clear and rotten shells.

Between 15 and 16 leagues, from 80 to 85 fathoms; grey sand and broken shells.

At 20 leagues, from 85 to 90 fathoms; grey sand, with great pieces of shells, and bits of small horns.

At 45 leagues, 95 fathoms; coarse rough sand, with a few red and white shells, and some little red stones.

West of Ushant,

At 6 leagues, 65 fathoms; sand mixed with rotten shells.

At 4 and 5 leagues, from 60 to 64 fathoms; pebbles, rotten shells, and some awl-points.

From 24 to 25 leagues, 85 fathoms; rough, long, red, and yellow sand, with some small points, and bits of shells.

At 30 or 35 leagues, 90 fathoms; thick grey sand, with pieces of large shells, little red and grey flints, and other bits of very fine shells.

West $\frac{1}{4}$ North,

At 5 leagues, from 65 to 68 fathoms; yellow and white sand, with little awl-points, and bits of fine shells.

From 16 to 18 leagues, 70 fathoms; fine grey sand, with awl-points, and some pieces of shells.

At 10 leagues, 75 fathoms; white sand, and barley chaff, with a few fine broken shells.

West North West,

At 5 leagues, 65 fathoms; grey sand, with small flat stones, awl-points, and little shells.

Between 12 and 13 leagues, from 65 to 68 fathoms; fine white sand, with some small stones, and a few broken shells and awl-points.

At 24 leagues, 70 fathoms; very fine white and grey sand, with a few fine shells, and awl-points.

At 55 leagues, on the little bank, called the Little Sole, that lies at the mouth of the Channel, you have 60 fathoms of water; fine yellow, white sand, speckled with black. On each side of the bank the depth is 80 fathoms; white and grey sand, mixed with some yellow chaff.

North West $\frac{1}{4}$ West,

Between 15 and 16 leagues, from 65 to 68 fathoms; fine sand, speckled with black, mixed with a quantity of barley chaff, little wreathed shells, and awl-points.

North West of Ushant,

At 15 or 16 leagues, 70 fathoms; red sand, with a mixture of bits of white and red shells.

From 18 to 20 leagues, in the same depth, you find white and grey sand, mixed with little yellow and white motes, and some awl-points.

North West $\frac{1}{4}$ North,

At 8 leagues, rough yellow and white sand, and barley chaff, with some awl-points, and bits of shells.

North North West,

From 18 to 20 leagues, 62 to 65 fathoms; small white, yellow, red and black stones, with bits of red shells, and some awl-points.

From 15 to 16 leagues, 58 to 60 fathoms; small red and white flints, with a little grey and white sand, fine and clean, and some bits of rotten shells, like rind of cheese.

North $\frac{1}{4}$ West,

At 9 or 10 leagues, 55 fathoms; grey sand, with flints of divers colours.

From 15 to 16 leagues, 55 fathoms; the ground a mixture of all sorts of broken shells, and small white, grey, and yellow stones, with barley chaff, and awl-points.

COURSES AND DISTANCES.

From Ouessant, or Ushant, to the Caskets, N E by E 40 leagues.

From Ushant to St. Helen's, N E by E $\frac{1}{3}$ N E 67 leagues.

———— to Portland, N E a little to the N 50 leagues.

———— to the Start Point, N N E a little to the N 35 leagues.

———— to the Lizard, N by W $\frac{1}{2}$ N N W 27 leagues.

———— to the Land's End, N N W $\frac{1}{2}$ N W by W $33\frac{1}{2}$ leagues.

———— to the Scilly Islands, N W $38\frac{1}{2}$ leagues.

———— to St. Matthew's Point, S E $4\frac{1}{2}$ leagues.

———— to the Passage du Raz, N N W $9\frac{1}{2}$ leagues.

CHAP. IV.

Directions for Sailing on the Coast of FRANCE in the BAY OF BISCAY, or GULF OF GASCONY, from the RAZ of FONTENAY to FONTARABIA.

PORT AUX CABESTRANS.

FROM the Raz of Fontenay to Port aux Cabestrans the course is E S E 2 leagues. This harbour is a great Creek, at each point of which is a rock uncovered at low water: between these two rocks lies the passage into the Road, for though they give it the name of Port, it is no more than a bye place, where ships never anchor but in case of necessity.

HODIERNE.

From Port aux Cabestrans to the Harbour of Hodierne the coast runs E $\frac{1}{4}$ S $1\frac{1}{4}$ league. Hodierne is a tide Port, which can be entered only at high water; but when once you are within it, you lie sheltered from all winds. Before it lies E S E and W N W a great rocky Bank, called the La Gamette, distant from the shore a quarter of a league. Ships pass between this bank and the land on the east as well as the west side, by steering near the shore. East of this port stands a very high church, and the town of Hodierne is situated on the west side.

At the foot of the Cliffs, it is high water at 4 o'clock, or a little less.

PENMARK ROCKS.

From Hodierne to the Rocks of Penmark the coast runs S E a little southerly, and forming a great bay. It is all high land till within a small distance from these rocks, where it sinks into a valley, on which you see a town and several churches. At full $\frac{3}{4}$ of a league from this town a great number of rocks are above and under water, with some passages between them for barks and small ships; but very difficult, and known only to the people of the place. The whole length of the coast from the rocks to the river of

Pont l'Abbé, which is 2 great leagues from Penmark, is full of banks and rocks, which extend near a league in breadth.

RIVER DU PONT L'ABBÉ.

The river of Pont l'Abbé is but little frequented, and accessible only at high water. It is almost barred with banks, which leave but a very small channel; but when once you are got within, you find it wide enough, and affording anchorage under the shelter of a little isle called L'Isle Tudy.

The tides are from $3\frac{3}{4}$ to 4 o'clock, as they are also at the Penmark rocks.

THE RIVER OF QUIMPER.

A league from the River of Pont l'Abbé to the E $\frac{1}{4}$ N is Quimper River. The whole length of the coast between these two rivers is bordered with rocks, which reach two cables length into the sea. Quimper River is broad enough; but a good quarter of a league without it, to the south of the entrance point on the east side, lies a rock under water, which requires caution: therefore, in entering you ought to approach the west side rather than the east, not only on account of this rock, but also of several other rocks at the same point: but when you are got between the two points, you re-approach the eastern side, till you arrive before a town called Benauder, and anchor in 6 or 7 fathoms water.

The tides here are from $3\frac{1}{2}$ to 4 o'clock.

CONCARNEAU.

From the Rocks of Penmark to Concarneau the coast runs $5\frac{1}{2}$ leagues to the east. All along the shore are numbers of rocks, which project two and three cables length into the sea. There are also several others above and under water, at the entrance of the harbour of Concarneau on both sides, which leave only a small channel in the middle. The marks to enter this harbour are, a Castle that stands on the east side within which you bring in a line with a mill farther up in the country; then you may anchor before Concarneau in 4 or 5 fathoms water.

The tides are at above 4 o'clock.

ISLES OF GLENAN.

About 3 leagues to the south of Concarneau harbour, you meet with the Isles of Glenan, which are a cluster of small islands, making a good haven, where a ship may lie under cover from all winds; but the entrance is difficult. These isles are encompassed on the south and west with a number of rocks, above and under water; but the north side is clear enough: you may sail between the main land and Glenan, the largest of them, by steering nearer to that island; and there you may also anchor in 10 or 12 fathoms water. There are, however, several rocks under water by the shores of these islands, and it is not safe to pass that way, especially if you are not well acquainted with it.

ROCK, called LA JUMENT, or the MARE.

A league and one third S S W of the west point of Glenan stands the rock called La Jument, which is almost perpetually under water; but the sea, on the least swell, breaks over it. You may come close by it, as there are 40 fathoms water; but it is better to pass at a distance, because the Glenan islands rocks stretching very near to the Jument, render the channel very narrow and dangerous.

ISLES AUX MOUTONS, or SHEEP ISLANDS.

To the E N E of the east end of the Glenan's are situated the two Sheep Islands. Between them and the Glenan's lies a small rocky bank under water, which must be avoided by passing not above $\frac{1}{4}$ of a league off Glenan, because of the rocks which lie near the westernmost island, and extend $\frac{1}{2}$ a league in breadth on the west side. Along these islands, towards the south, are many rocks under water, but on the north or land side they are clear, and one may anchor in 10 or 12 fathoms water. At $1\frac{1}{2}$ league to the E N E of these isles is a large black rock a small league off the main land. You may pass abreast of it without danger, as it is clear all round.

PORT LOUIS.

From Concarneau to Port Louis the coast runs E $\frac{1}{4}$ N 8 leagues. Port

Louis is an excellent harbour, with a very good citadel, and a town on the eastern side, and a large village on the west. But without the port, towards the east, are a multitude of rocks under water, which render its entrance rather difficult. The mark to enter it, is to bring the edge of the citadel in a line with St. Catherine, which is a little convent within the river or bay, on the same side as the city, upon a point projecting into the sea, and directly to the east of St. Michael's island. When you are got within the citadel, you cast anchor in 5 or 6 fathoms water, or else run aground under the town, to the north of it, if it be high tide; for at low water you cannot come under the town, the place being dry at every tide.

It is high water here at 4 o'clock $\frac{1}{4}$, on the days of new and full moon.

L' O R I E N T.

L'Orient is situated about $\frac{3}{4}$ of a league above Port Louis, at the bottom of the bay, which is formed by the confluence of the Plotseorf and Blavet rivers. It is the place from whence the whole Asiatic trade of the French is carried on.

Instructions for the Entrance of PORT LOUIS and L'ORIENT, by Mons.

D'APRES DE MANNEVILLETTE, author of the Neptune Oriental.

Whether you weigh from the Isle of Groix, or are coming from the offing to pass to the westward of the Truyes (the Sows), and the Errants, which they call the Great Channel, you are to steer so as to keep the tower of Larmor N E $\frac{1}{4}$ E 5° E by compass, till one of the mills standing to the eastward of Port Louis is hid by the southernmost part of the town walls, and the other is well open; by this means you will sail in the mid-channel between the Saisies of Larmor and the Sows. Keeping those marks on, as soon as you are so far advanced as to perceive the high land of Pennemanec in one with the westernmost corner of the citadel of Port Louis, you will steer in that direction till the west point of St. Michael's is brought on with a White Mark which lies to the westward of the storehouses of L'Orient's harbour; this will carry you safe between the Mare, on which stands a beacon, and the foot of the citadel.



Point

Trilaven Castle





From this situation you may choose which of the two channels is most convenient, either to the westward of St. Michael's, or between St. Michael's and St. Catherine. In the first case you are to proceed in this tract till Queroman's Mansion-house is brought in a line with the Miller's White-house that stands by Queroman's windmill, near the shore ; leaving on your starboard side a rock, on which there is only 12 feet at low water, spring tides, and on your larboard side another rock, called the Hog, which is known by a beacon upon it. Thus you will pass between the Turk's bank and the Quernevel* bank, till you have the White Mark of the store-house (already mentioned) in one with the single house that stands on the beach ; you steer in this manner till athwart St. Michael's, and then proceed for the road of Pennemané, leaving on the starboard hand the rock named Paugarne, or Quintrec.

In the second case, if you are to pass between St. Michael's Island and St. Catherine, when you find yourself in the situation mentioned above, you perceive the corner wall of St. Catherine's Garden in one with a White House that stands in the middle of Nezenel town ; steering in the direction of this mark, you come athwart the southernmost end of St. Catherine's, and then you range along the whole of the place in such a manner as to leave $\frac{2}{3}$ of the channel towards St. Michael's, and $\frac{1}{3}$ towards St. Catherine's ; this tract is to be followed till you discover a little wood in the neighbourhood of Port Louis, called Querbel, through the hole of a causeway, or stone bridge, which communicates from St. Catherine's to the main ; in steering thus Panguarne rock beacon is left on the starboard side ; and when you have passed it a ship's length, you steer for the road of Pennemané. It is to be observed, that with a ship drawing above 21 feet water, you cannot make for this road but at high water, spring tides ; in this case you are to anchor at Port Louis.

When you pass to the eastward of the Errants (by the middle channel) you must, from as great a distance as you can, bring the tower of L'Orient in one with the westernmost bastion of the citadel of Port Louis, and steer-

* Mons. D'Après calls this bank Querso in his Plan.

ing thus, you leave on the larboard hand the rock called Errants, and on the starboard hand the rocks of Bastrene, on which there is a buoy. Sailing on, in this direction, the Three Stones are left on the larboard, and when you have proceeded so far as to bring a fountain, seen on the beach of Gavre, in a line with a single tree, that stands on the same part of the peninsula to the N eastward of the village, then you are to steer keeping Larmor windmill on with the two houses which are nearest to the extreme point of Larmor. By this tract you come into the Great Channel at the point from whence you perceive the high land of Pennemanec in one with the westernmost corner of the citadel of Port Louis, and then you follow the instructions already given.

The third entrance, which they name Gavre Channel, is only fit for small vessels; its mark is to keep Larmor windmill in one with the two houses which are nearest to the extreme point of Larmor, to get into the Great Channel at the point mentioned in the preceding paragraph.

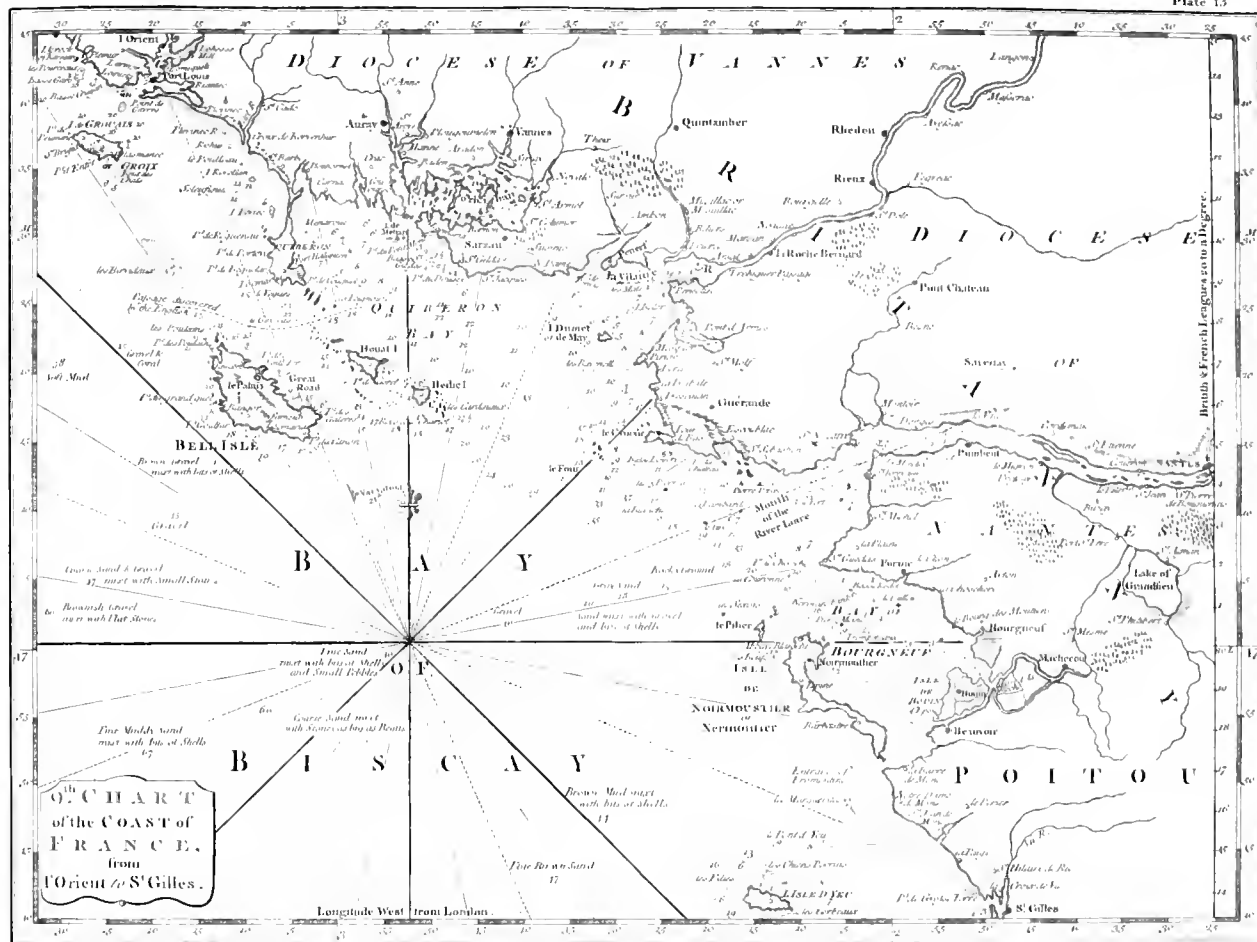
It is high water between Port Louis and L'Orient at 4 o'clock $\frac{1}{2}$, on the days of new and full moon; and the perpendicular rise of the water is 15 feet in spring tides.

GROIX, or GROUAIS.

Directly fronting Port Louis, 2 leagues to the south of it, lies the Isle of Groix, near $1\frac{1}{2}$ league in length, E S E and W N W, with several trees and houses on it. Between this isle and the land, but nearer to the land, is a bank with only 12 or 13 feet on it, at low water; the anchorage is, between this bank and the isle, in 10, 12, to 15 fathoms, on a bottom of sand and little pebbles resembling coral. Groix Island is very clear all round, except on the S E side, where you meet with a bank of rocks, which stretches $\frac{1}{2}$ a league in the sea. These rocks are called Bout des Chats (the cat's end).

QUIBERON.

From Port Louis to Quiberon Point the coast runs S E above $5\frac{1}{2}$ leagues, being all low land, with downs between: about half way is a big rock above water. At Point Quiberon is a ledge of rocks, which reaches to the isle of Houat.



HOUAT and HEDIC ISLANDS.

About 2 leagues to the south of Point Quiberon lies the Isle of Houat; but there is no passage * between them, because of the bank or ledge above-mentioned, which is contiguous to them both. This isle is about a league in length E S E and W N W. It is surrounded on the S E and the north with a multitude of rocks, above and under water. And the N by W end stands, wide of all the rest, a high rock, called La Teignouse, which is the mark for passing between Houat and Hedic; but this channel is very narrow and dangerous, and few ships venture through it, except those who are well acquainted with it. Hedic is distant from Houat a great league and a half to the S E. The nearest point of Hedic is encompassed with Rocks above and under water, which spread a good quarter of a league in breadth, and almost barring the passage between the two Isles, render it difficult. Hedic is a round island, near half a league diameter. It lies within a multitude of rocks, above and under water, near which it is not safe to steer; there is however good anchorage abreast of them in 9 or 10 fathoms, on a bottom of sand and mud.

CARDINAUX, or CARDINALS.

Half a league to the east of Helic Island lies a cluster of great rocks called the Cardinals; the largest above water, and some of them extending two good cables length. There is no passage between Hedic and the Cardinals, because of the rocks.

The tides are very strong all along these rocks, and the moon N E $\frac{1}{4}$ E, and S W $\frac{1}{4}$ W, makes high water.

When you are bound for the Rivers of Auray, Vannes, Vilaine, or for the Croisie, you pass to the east of the Cardinals, at the distance of a quarter of a league.

* Though the passage here was not known to the French navigators, yet we are assured, from undoubted authority, that the British ships have perfectly discovered one, through which commodore Duff's squadron passed from the Bay of Quiberon, at the approach of M. Conflan's squadron in 1759.

BELLE ISLE, or BELLISLE.

Five leagues to the S S E of the E south-eastern end of Groix Island is the western Point of Belle-isle Island called La Pont des Poulans from a number of Rocks lying west of that point, and named Les Poulans (the colts), some above, others under water; but that which stands widest of the rest is above water, and is a great and high rock. On the south side of Belle-isle are a multitude of other rocks above and under water, which lie very near the shore. Belle-isle is 3 leagues in length, very high and steep almost all round. On the north side, about half way the island, is situated the town and harbour of Palais, which is the most frequented; you find also another harbour, a little above this, called Sauzon, but seldom visited, though it is much better than the former. There are a number of roads for ships at this island, the most frequented of which are those on the northern side, under the castle, and a league to the east of it. Another good road lies on the east side of the island, under Point Loemaria. The anchorage is in 8, 10, or 15 fathoms water, according to the distance from the shore. A little to the east of the castle, and $\frac{1}{2}$ a league from the shore, lies a rock under water, named Basse-Palais, on which are $4\frac{1}{2}$ fathoms at low water; and $\frac{1}{2}$ a league from the shore, off Colts Point, to the N W, are several rocks on a level with the water, which are very dangerous.

ENTRANCE of the RIVERS of VANNES and AURAY.

From the east point of the Cardinals to the River of Auray, or of Vannes (for the two rivers have but one mouth) the course is 5 leagues N $\frac{1}{4}$ W. On the west side of the mouth of these two rivers lies a great bank of rocks with several isles, which extend about 1 league to the S E $\frac{1}{4}$ E. You leave these isles on the larboard side as you make your entrance, passing between those isles and Point Mehan, near mid-channel, and steering a little nearer to the east shore. You find in this passage from 7 to 8 fathoms water. When you are got within the said isles and the east point, you see the mouth of the two rivers. There are a multitude of isles and rocks in those rivers, and the tides are there extremely strong and quick, which occasions almost

Bay's Pl

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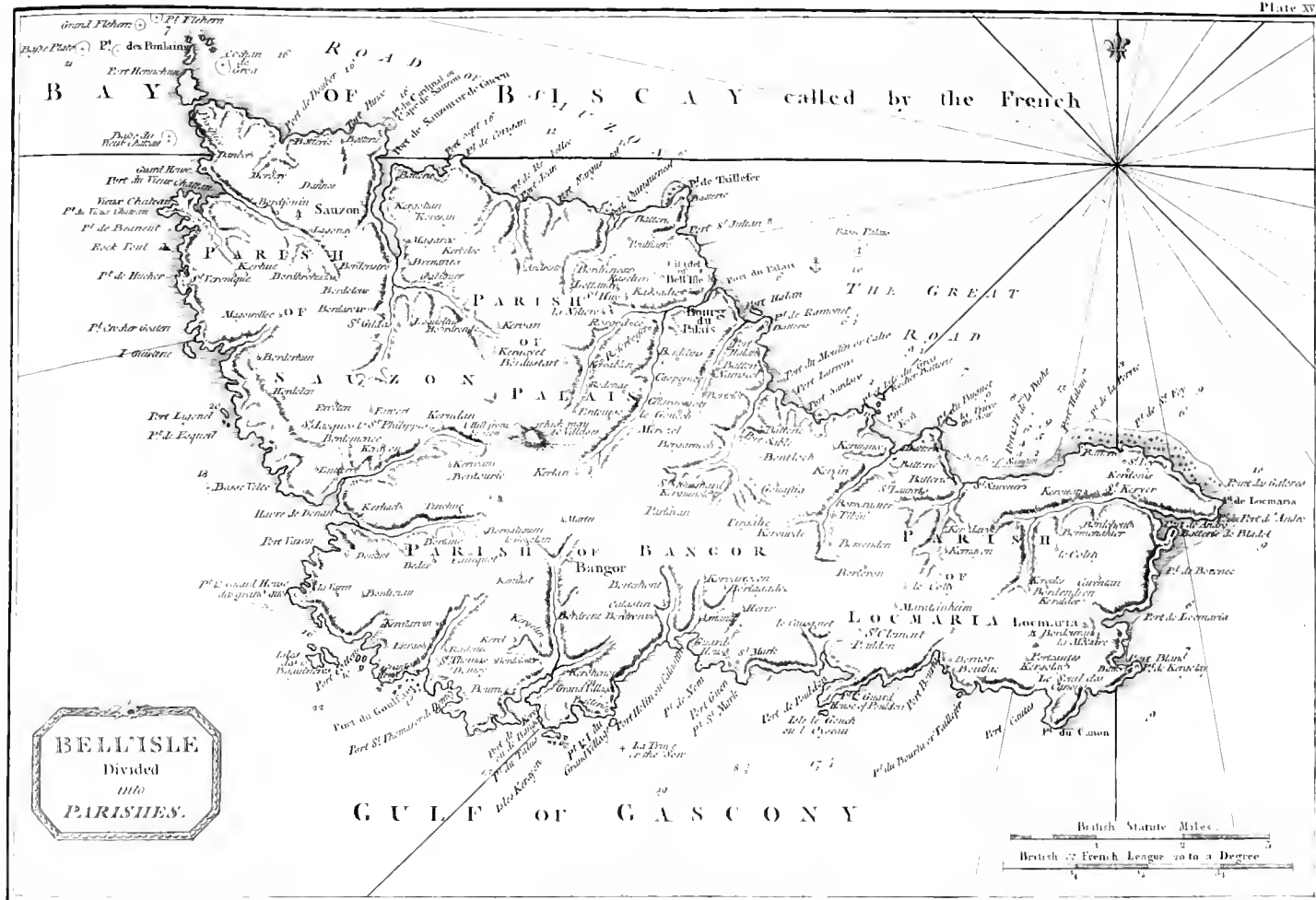
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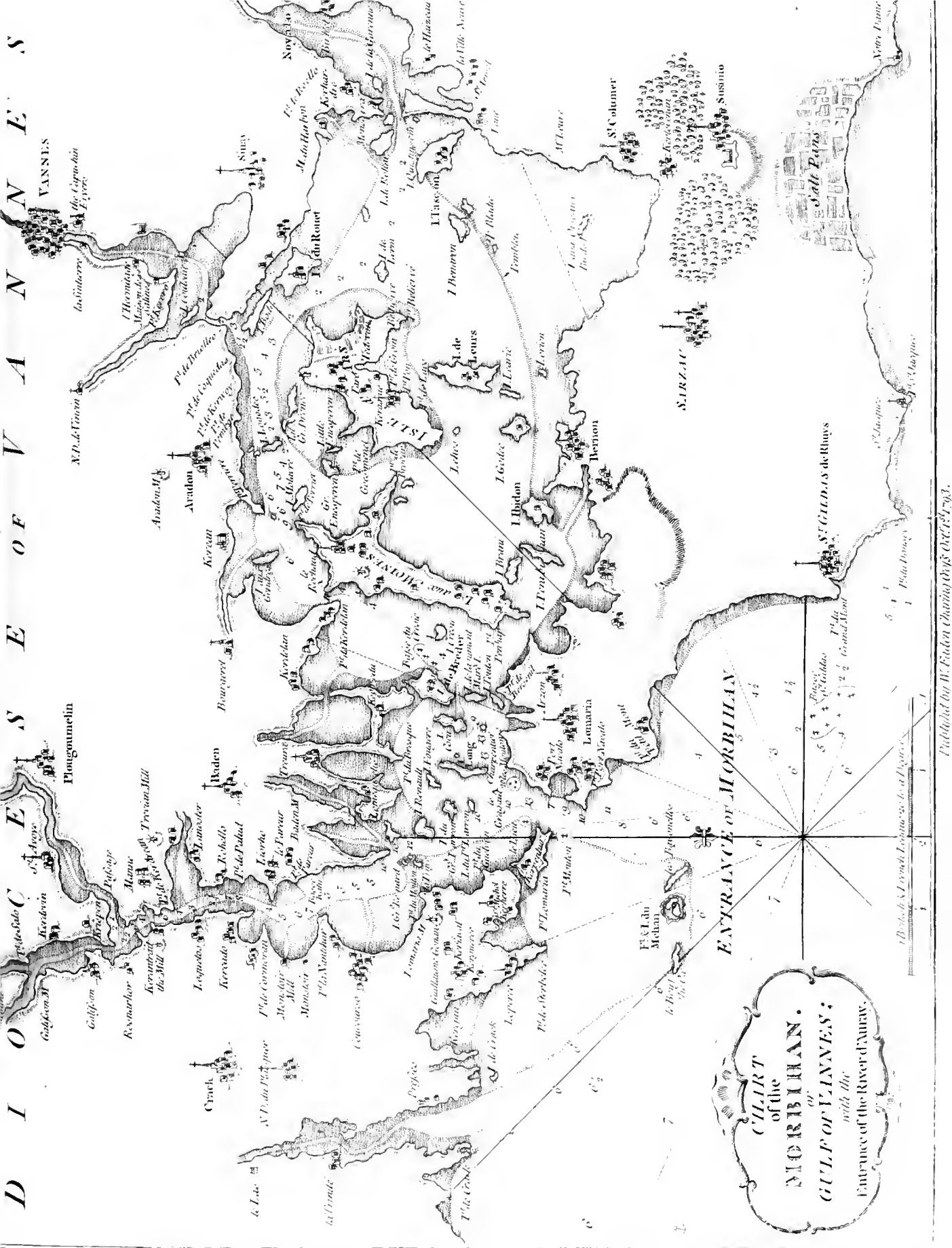
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continually a great current of water pouring in or out, through the narrow passage : for this reason they are never to be entered without pilots. You may cast anchor any where, as well without the entrance as within.

The tides set S W $\frac{1}{4}$ W and N E $\frac{1}{4}$ E ; and it is high water 45 minutes after 3 o'clock on the days of the new and full moon.

In entering these rivers you must be cautious of a bank on the east shore, about 1 league distant from Point Mehan : this bank, which joins to the land, and extends above $\frac{1}{2}$ a league into the sea, is directly opposite to the high steeple of St. Gildas. Between the Cardinals and this point, within the compass of the isles of Houat and Hedic, there is every where good anchorage in 8, 10, or 12 fathoms, according to the distance from the land.

RIVER VILAINE.

From Point Dousey to the River Vilaine the coast runs about $4\frac{1}{2}$ leagues east, and from the Cardinals to the entrance of the said river the course is above 6 leagues N E. But you must steer round Isle Dumet, lying between them, and running into a number of sandy points, which stretch into the sea $\frac{1}{4}$ of a league, and require a good birth. The common channel is to the west of this isle, and the western side of the entrance of the river is always taken on account of its cleanness. Then you steer a cable's length off the land, or farther if you think fit, till you have the river open, after which you enter through the middle of the channel, for there are rocks at the east side of the entrance ; when you are got within these rocks, you may anchor, or else run aground. At low water the ordinary tide is from 9 to 10 feet, in the mouth of the river.

The tide here rises a fathom and $\frac{1}{2}$, or 2 fathoms perpendicular ; and the moon in the N E $\frac{1}{4}$ E, and S W $\frac{1}{4}$ W makes high tide ; that is to say, at 45 min. past 5 o'clock on the days of the new and full moon.

Though I give directions here for those rivers, I would not advise any person to enter them without the assistance of a pilot, no more than the Croisic ; and pilots are almost constantly attending, at the Cardinals, in their shallops for that purpose.

CROISIC.

From River Vilaine to Croisic the coast runs about 4 leagues to the south. The land is all low, and at a small distance you see the town of Guerande, with a high pointed steeple; and within the point of Croisic comes in view another high steeple of stone, called La Tour de Bas, by which marks this coast is easily known. When you pass between the land and Isle Dumet, you must keep nearer to the land than to the isle, because of several banks which run out from the said isle towards the land. And when you set sail from the Cardinals for Croisic, the course is above 5 leagues east, then you pass between Isle Dumet and a ledge of rocks, called Le Four, which is very dangerous. When you have a mind to steer with safety in that passage, you must not bring the high steeple of La Tour de Bas to the S E of the Point Croisic, nor yet unite them in the same line, for you would infallibly run upon the Four: but you must keep the said steeple on the N E of Point Croisic, by which means you will pass between the abovesaid bank and Isle Dumet, at a small $\frac{1}{2}$ league. The entrance of Croisic is extremely difficult, both on account of the multitude of rocks which block up that whole haven, and of the great currents inward and outward; it is no sooner high water than the ebb forces you back, and one as well as the other carries you directly across the said rocks; for which reason this harbour is very rarely visited but by small vessels; besides, it is dry every tide.

The moon in N E $\frac{1}{4}$ E, and S W $\frac{1}{4}$ W makes high water.

There is a spot within the entrance of this harbour, called the Linigot, where two ships may ride in 10 or 12 feet water:—The exports of this place are only white salt, of which they make a quantity, pilchards, and brandy, which come from Nantes.

The LOIRE, or RIVER OF NANTES.

One league and $\frac{1}{3}$ west of Point Croisic lies the point of the bank called The Four,* which is dry every tide. It is almost 2 leagues in length to the

* On this bank the Resolution was wrecked in the memorable sea-fight, fought Nov. 1759.

south, and its south point is 7 leagues distant from the point of Belleisle, S E by E, and 4 leagues E $\frac{1}{4}$ S from the Point of the Cardinals. In your course from Belleisle to Nantes, you pass between the Point of Croisic and the said Bank du Four, tacking about at Point Croisic, because of some rocks, which make it dangerous to approach too near the shore. A league east of Point Croisic is situated the little harbour of Poulquain, which is dry every tide. Eastward of Croisic are several rocks under water, to avoid which you must not go near the land, and you are to steer E S E, and S E $\frac{1}{4}$ E, till you come to the Pierced Rock, or Pierre Percée, by which you may sail very close on its north side, in no less than 4 fathoms water. After passing the Pierced Rock, your course is N N E towards the land, which you coast till you come within a league of St. Nazaire. You must keep at some distance from the shore, because of a rocky point which advances into the sea, and requires tacking about. The marks to know when you are near this point take as follows: upon the high land there is a mill, which brought into a line with a country-house seated on the bank of the river, shews that you are full abreast of this point of rocks; and when you are past these marks you may again approach the land, and range along to St. Nazaire, and there cast anchor in 6 or 7 fathoms water. To the N N E of St. Nazaire, when you take that passage, you must not be sparing of your lead, and you find at least from 3 to 4 fathoms at low water. To the S S E of St. Nazaire, exactly in the middle of the river, lies a ledge of rocks, covered at half tide, to avoid which you must always coast the north side of the river, as aforesaid; and be very wary of its tides, for the currents are very violent.

The moon in the S W $\frac{1}{2}$ W, and N E $\frac{1}{4}$ E, makes it here high tide.

When you go from St. Nazaire to Nantes, you must steer E $\frac{1}{4}$ S, till you come along the south shore, which you coast along till within the bank that lies opposite to the little town of Paimbeuf; when you are past the said bank, you approach the north shore, and cast anchor in 7 or 8 fathoms water, sand and mud. You may also anchor by the south shore. This river is very rarely entered without taking pilots.

When you propose to sail out of the river of Nantes by the south of the Pierced Rock, you must steer, as before directed, till you are without the

second point of the river; then you stand off from the north shore, to the middle of the river, and thus proceed to the south of the Pierced Rock; as soon as you can see the rock which is to the north of the Pierced Rock, without the point, you will have $4\frac{1}{2}$ fathoms water; but when you bring the Pierced Rock to the N N W and N $\frac{1}{4}$ W, you are then in 5, 6, or 7 fathoms, and very near the rocks to the south of it. When you approach the Isle du Pilier, you have 9 or 10 fathoms water.

Before the river of Nantes are several banks, over which you may pass at high water.

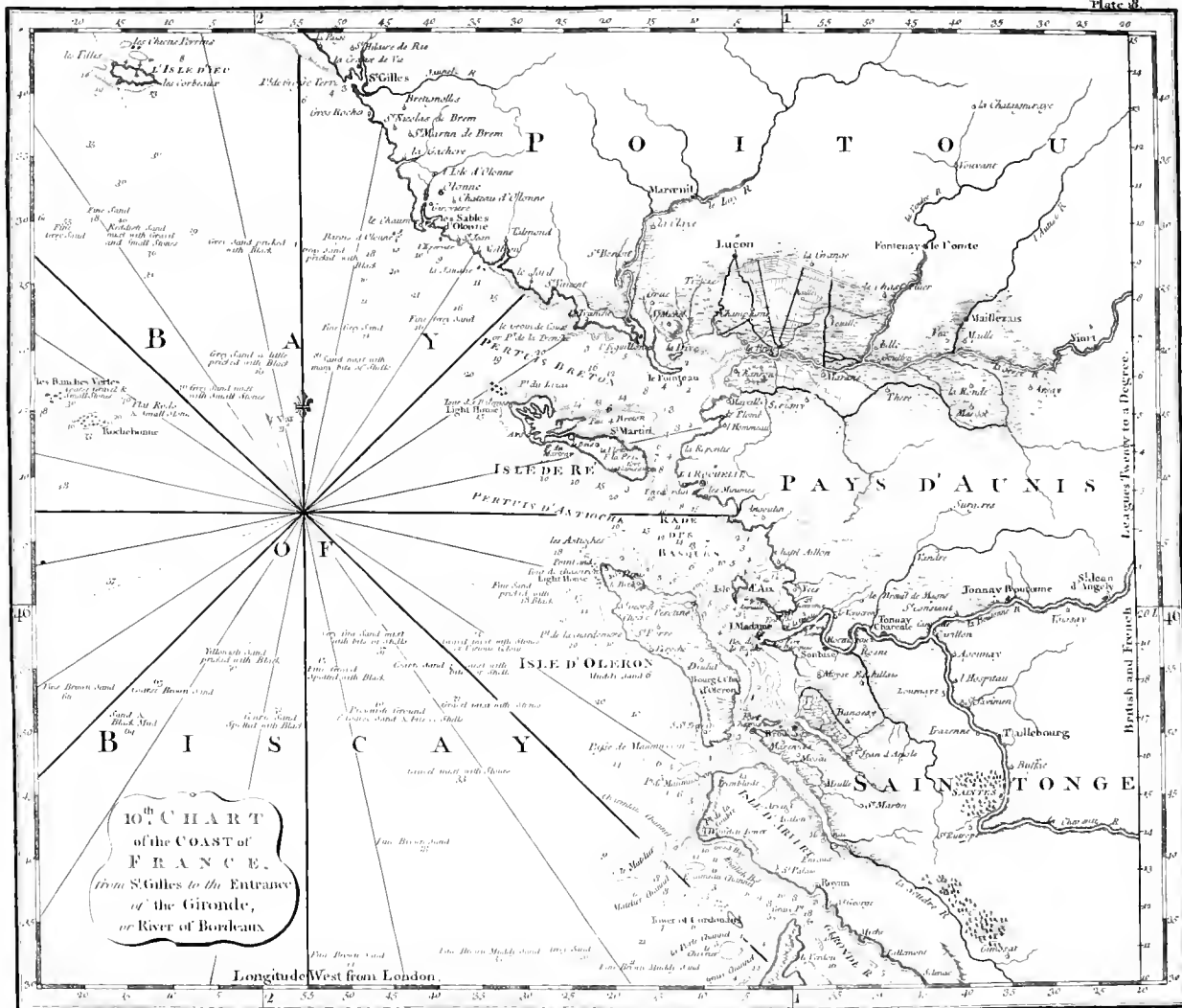
NOIRMOUSTIER, or NERMONTIER, and BAY of BOURGNEUF.

When you sail from Belleisle for the Bay of Bourgneuf, you must steer E S E till you come in sight of the small isle called Le Pelier, and also of the isle of Noirmoustier. And when you have the Pilier a good league, or $1\frac{1}{2}$ league to the south, you then steer E $\frac{1}{4}$ N till you bring the convent and castle of Noirmoustier together; then keeping these in one, you double the Banc des Moines (monks bank), and may begin again to steer E S E till you are within the Pierre Moine (monk stone), which you pass on what side you choose; and when you are abreast of Grave, you anchor where you think fit, in 6 or 7 fathoms water, and go ashore to get a pilot to carry you to Bourgneuf.

The tides here are about 4 o'clock on the days of the new and full moon.

ISLE D'YEU.

From Pilier to Isle d'Yeu the course is S $\frac{1}{4}$ E, east, a little easterly, but care must be taken of the Beufs (the oxen). These are a number of banks, which lie to the south and S E of Pilier, and 2 great leagues wide of Noirmoustier. You must not approach them within 14 or 15 fathoms, for they are very steep to, and have 10 fathoms quite close to them. Isle d'Yeu has a multitude of rocks on the west side, some of which extend about $\frac{3}{4}$ of a league off the land: these are called Les Chiens Perrins. There are also several small rocky shelves along the shore on the N E side, but they do not project far into the sea. The S W coast is clearer, and there you may approach the isle as nigh as you please.



This isle has two small harbours, fit only for barks of 60 or 80 tons, and dry every tide. One of them is on the N E, and the other on the S W side, and both about the middle of the isle, between its two extreme points. Isle d'Yeu is easily known by a pointed steeple upon it : when you would anchor in the road of that island, you bring the steeple to bear S W, and then lie in 8 or 9 fathoms water ; but the bottom is not very good, and there is commonly a great sea.

The tides set N E and S W.

SAINT GILLES.

Off Isle d'Yeu, towards the east, is the small harbour of St. Gilles, which is a tide port, fit only to receive vessels of 100 or 120 tons. There is also a town of that name, which cannot be seen from sea : the river is known by a great wood near it ; but this place is frequented by none but people of the neighbourhood.

The moon in the N E and S W makes high water.

LES BARGES D'OLONNE.

From Isle d'Yeu to the N W end of Isle de Re, which makes the S W side of the entrance of Pertuis Breton, the course is $12\frac{1}{2}$ leagues S E $\frac{1}{4}$ E. But in taking that course you would run upon the Barges d'Olonne ; wherefore when you set sail from Isle d'Yeu you must steer more widely, steering S E, and even S E $\frac{1}{4}$ S, till you find yourself to the S W of the said Barges. Then you approach nearer to land in 13 or 14 fathoms water, if it be night ; but in day time you steer with the land in sight. This coast is all sound.

The Barges d'Olonne lie $7\frac{1}{2}$ leagues from Isle d'Yeu, and above 5 leagues from Isle de Ré, stretching near $\frac{3}{4}$ of a league in the sea. They are uncovered at low water, and across them there is no passage, wherefore they are very dangerous. They lie about a league west of the harbour of Olonne, and have very near them 16 and 18 fathoms water. When you come by night, you must not approach the said Barges within 20 fathoms, and keep the same course till you are within Pertuis Breton.

THE HARBOUR OF OLONNE.

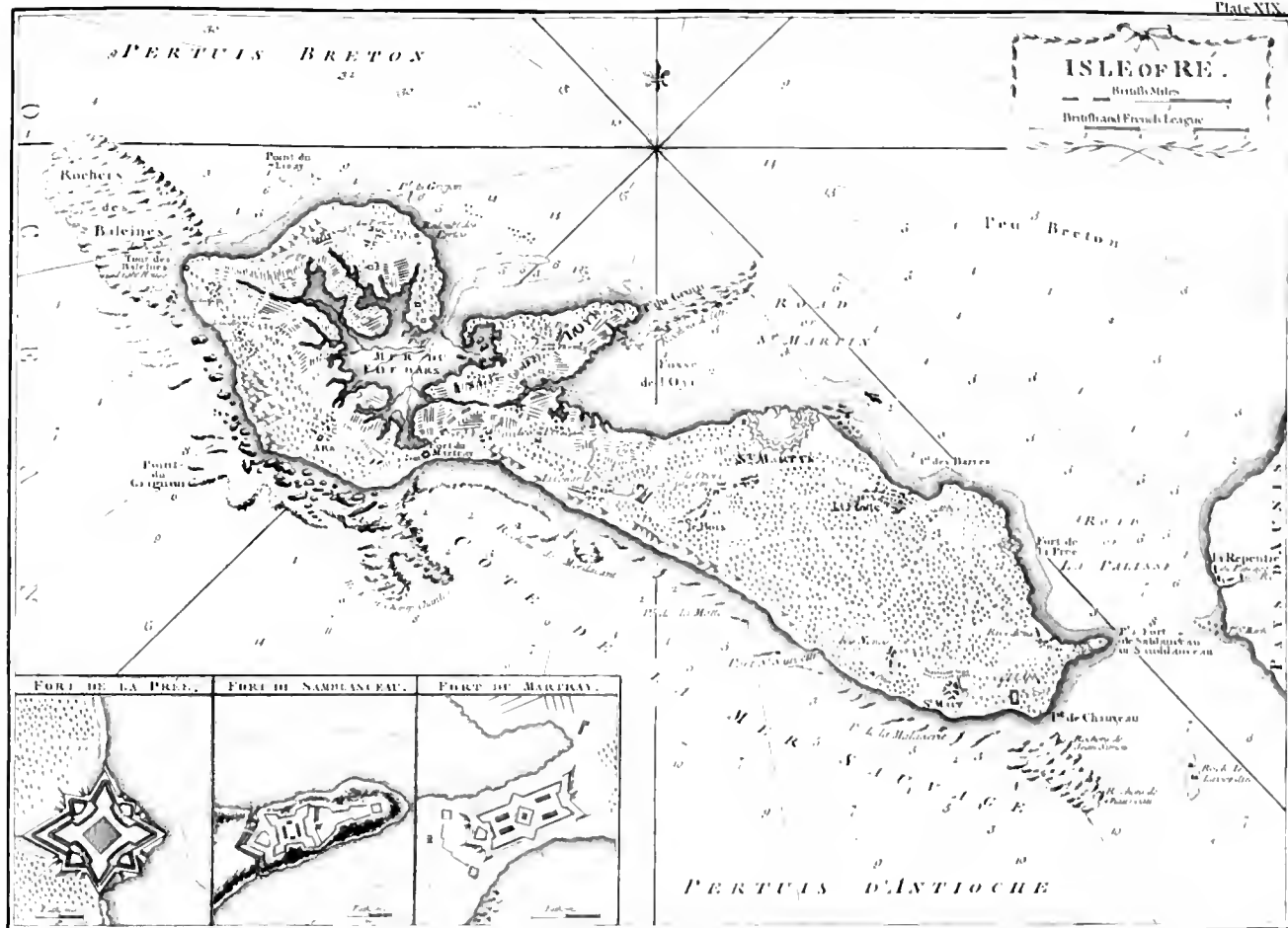
The Harbour of Olonne lies to the eastward of the Barges, as aforesaid. It is a tide port, where ships lie dry, and can only be entered at high water. Its situation is between two towns, the easternmost of which is called Les Sables d'Olonne, and that on the west Le Chaume. The coast on this side projects farther into the sea than that on the east, forming a great point, on which is a small square church, with a small pointed steeple, called St. Nicholas. Between this church and the castle, which stands more inwards, and on the same side, is a bank which projects a good way from the land; therefore you must go nearer the coast of the Sables d'Olonne, and steering N W till you are within the said bank, and near the castle; whence you may go in the mid-channel, when you approach the Sables d'Olonne, to tack about the bank of the Chaume. You must be cautious also of a point on the side of the Sables, which projects a little forwards, and not approach too near the coast of the Sables. The marks to know Olonne in coming from the sea are a high pointed steeple, with two small ones.

The tides in this port set N E and S W 3 hours.

PERTUIS BRETON.

From Olonne to Pertuis Breton the coast runs about 6 leagues to the E S E. The land is all low, both on the coast of Poitou and of Isle de Ré. You may sail in the mid-channel between them, or approach nearer the main land, because of the bank of St. Martin, or Peu Breton, which shoots almost into the middle of the channel towards the east. When you have the church of St. Martin bearing S S W you may again steer to Isle de Ré, and cast anchor before St. Martin in 3, 4, 5, or 6 fathoms water; mud and sand.

On the coast of the main, exactly at Pointe de la Trenche, which forms the entrance of Bay Moran, are also banks, which run out a great $\frac{1}{4}$ of a league, and require caution. When you are past St. Martin's road, and are bound for La Palisse or La Rochelle with a great ship, you must approach the main land at one third of its distance from Isle de Ré, because of a bank of mud and sand in the middle of the channel, on which there are from 15



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to 16 feet at low water, but on its north side you have 5 or 6 fathoms. This bank is not very dangerous, because it is soft; however it is good not to touch upon it. When you are past this bank, and have Pointe du Plomb, which is at the western extremity of Bay Moran; bearing N E you may again steer towards Isle de Ré, and anchor in the road of La Palisse, if you think fit, under the fort of La Prée, in 6 or 7 fathoms water; muddy bottom: or else go to the road of Chef de Bois, always following the middle of the channel, till you open La Rochelle, and then steer east into the road, where you anchor in 5, 6, 7, or 8 fathoms water; muddy ground.

When you sail from St. Martin in a ship that draws from 11 to 12 feet water, and it happens to be low tide, no account is made of the bank before-mentioned, and consequently at high water less notice is to be taken of it, for there is then water enough upon it for passing without the least apprehension. There is also a pass between this bank and Isle de Ré, in 4 fathoms at low water. But from the point of the island a bank of sand and mud stretches a good way in the sea, and renders that passage narrow. Great ships commonly wait for the tide to pass over the said bank.

In luffing, either at entering or coming out of Pertuis Breton, the following marks are to be observed for avoiding St. Martin's Bank, which consists of thick flints, and has but 5 or 6 feet water on it at low water, where deepest.

When you run along the coast of Isle de Ré, and begin to bring the first houses of the village of Oye into a line with the steeple of Ars, then is the time for tacking about; for if you should wait till that steeple comes to the middle of the village, you will be upon the bank: and when you steer along the coast of the continent you may then go in 8 or 9 fathoms water; for without the said bank, as you make to the west in the middle of the channel, you will find from 12 to 14 fathoms. But when you have brought the said steeple of Ars in a line with a mill that stands on the south extreme of Oye, you are then within the bank, and may steer into the road, where you come to an anchor as before mentioned.

THE WHALES ROCKS, or ROCHERS DES BALEINES.

At the west point of Isle de Ré lies a great rocky bank, which is never

uncovered, and extends $\frac{3}{4}$ of a league into the sea. A great tower is erected on that point, and a fire made on it every night, for avoiding this bank, which is named Les Baleines d'Ars (the whales of Ars).

On the south side of the said isle, from the Balcines to about half ways its length, are rocks which stretch a good quarter of a mile wide of land; and at its extremity another bank of rocks, called Champ Chardon, extending a good $\frac{1}{2}$ league off the shore.

Moreover, at the S E end of this isle, under the village of Sainte Marie, there is yet another bank or point which advances into the sea a good $\frac{1}{4}$ of a league, and requires caution, either in coming in or going out of the Pertuis d'Antioche.

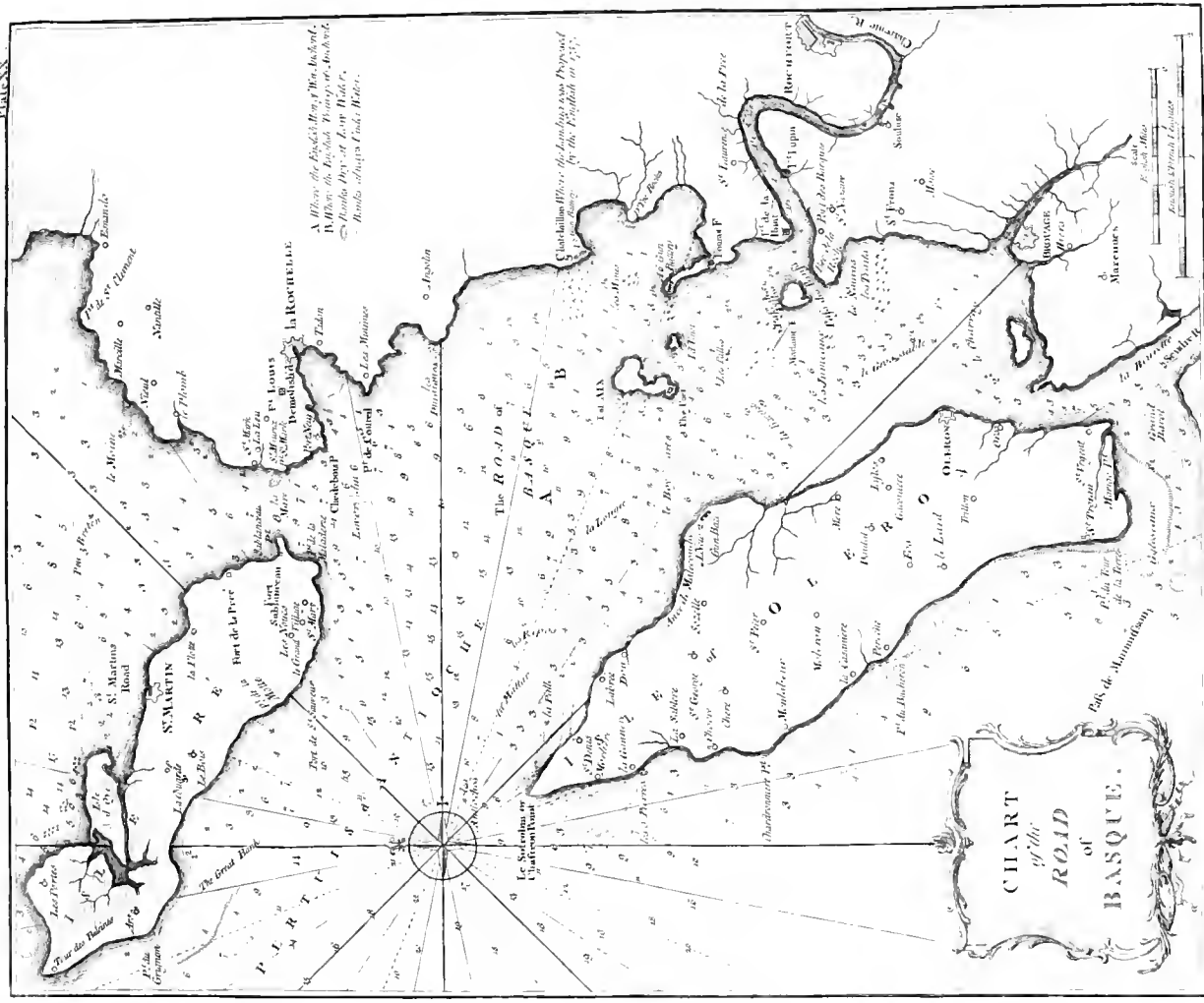
ROCHE BONNE, and LES BANCHES VERTES.

About $10\frac{1}{2}$ leagues from the west point of Isle de Ré, in the Atlantic Ocean, lies the shoal of Roche Bonne, 1 league long from east to west, and $\frac{1}{2}$ a league broad. To the N W of this you find the Banches Vertes, another shoal, whose size is about half the extent of the former, from which it is separated by a channel, through which you may pass in 30 fathoms; both shoals consist of many rocks above and under water; they are steep to, and have from 20 to 30 and 40 fathoms near them.

L A V E R D I N.

About a small $\frac{1}{2}$ league wide of the eastern end of Isle de Ré, there is another small bank with not above 2 or 3 feet on it at low water, and which dries in spring tides. This bank, called Laverdin, is very dangerous to those who enter, or go out through the two Pertuis, viz. the Pertuis Breton, and the Pertuis d'Antioche. For avoiding it observe the following marks:

When you enter by the Pertuis Breton, and design for La Rochelle, you must steer nigher to the coast of Laleu than to Isle de Ré, till you have the land of Plomb, or the whole Bay of Moran hidden by the point of La Repentie; after which you may make directly in a straight course for the road of Chef de Bois, and there come to an anchor as aforesaid. If you enter by the Pertuis d'Antioche, you must keep the lanthorn tower in full view, and



not bring it to the point of Chef de Bois, which would infallibly throw you upon the Laverdin. When you bring the point of Chef de Bois to the lantern tower, and the point of La Repentie to the Point du Plomb, or discover the eastern coast of Moran by the point of La Repentie, you are then on the said bank of Laverdin. You may however pass quite round it, for between it and Isle de Ré are from 5 to 6 fathoms water.

PERTUIS D'ANTIOCHE.

The Pertuis d'Antioche is between Isle de Ré and that of Oleron, having above 2 leagues in breadth. But at the end of the northern point of Oleron lies a great bank, or ledge of rocks, called the Antioches, or Antiochois, which extends full $\frac{3}{4}$ of a league wide of the coast to the W N W; wherefore you must follow the middle of the channel, or else steer nigher to Isle de Ré than to the Isle of Oleron, always taking care of Point St. Mary in Isle de Ré. Afterwards, when you are got within it, you make use of the marks, as before directed, for keeping off the Laverdin, for there is no other danger in your course to the road of Chef de Bois.

On the north-easternmost point of Oleron stands a light-house, called the Tower of Chassiron, where a large fire of wood is kept in every night; it has two fire places, one above another, that sailors may easily distinguish it from the Tower of Cordouan at the mouth of the Gironde.

If you would enter the port of La Rochelle, or the Digue, coasting pilots are required. At the entrance of the Digue, on the larboard side in entering, there is a mast erected, to which you pass very close. It is dry every tide, both within the Digue, and in the harbour of La Rochelle.

The tides are from $\frac{1}{2}$ an hour after 3 to 4 o'clock, at the new and full moon.

When you go from La Rochelle to the river of Charente, Brouage, Oleron, or Seudre, you take a pilot at La Rochelle, who conducts you to the place intended. We will, however, give some directions to be observed in those courses, in case you should be obliged to make them without an opportunity of taking a pilot with you.

ISLE D'AIX, and RIVER OF CHARENTE.

When you sail from Chef de Bois, for Oleron, Brouage, Seudre, or Charente, you must look out for the Isle of Aix. The course to this island is 3 leagues southward; it is a flat island, on which are a number of small houses, with an old church of stone. You steer 3 or 4 cables length wide of this isle. There are many rocks about it, but the most dangerous are nearest to the continent. Off the Isle of Aix, between it and Oleron, but nearer to Oleron, a great bank, partly dry at every tide, and 2 leagues in length, lies S E and N W, as is the coast of Oleron: it has passages all round, but scarce ever a vessel passes between it and Oleron. The channel between this bank and the Isle of Aix is a good $\frac{1}{2}$ league in breadth, and is that which all ships take in their course to Oleron, Seudre, Brouage, and Charente, or for coming out by Maumusson. This isle lies east on the larboard, in making for the abovesaid places; and if the ship be bound for Charente, you range along the whole length of the isle on the eastern side, steering eastward till you arrive at the opening of the river Charente, and anchor between the isle and the river, in expectation of a pilot; for the Charente is never entered without a pilot.

One might also pass to the north of the Isle of Aix, but it is very dangerous, both on account of the rocks at the point of Fouras, and of those at the N E end of the Isle of Aix. There is a bank at the southern point of the river Charente, called the Palles, which extends a great way into the sea, on the side towards the Isle of Aix; and therefore it is best to anchor near the isle in 7 or 8 fathoms water. Between this isle and the point of La Rochelle, along the main land, lie several banks of rocks, which stretch off a full $\frac{1}{4}$ of a league into the sea, and must be avoided.

BROUAGE.

When you are bound from the Isle of Aix to Brouage, you are to steer S S E, keeping the steeple of Hiers to the north of a wood which is nearer the sea than the said steeple, till you bring the Tower of Fouras to a tiled house on the south side of the river Charente. Then your course must be

S E and S E $\frac{1}{4}$ E, till the village facing you, which stands on the brink of the sea, comes to the north of Soubise; and when Soubise shall be within the said village, or in a line with the mill that is above it, you are near the rock called Banc aux Huitres (or oyster bank), which lies directly before the mouth of the haven. After this steer S E $\frac{1}{4}$ S, till you bring the westernmost steeple of Hiers in a line with the westernmost Sandy Hummock, on which there is a gibbet, and keep it thus while you are sailing S S E inwards; and when the steeple shall come to you by the eastern side of the valley which is in the wood, hold them so, and entering by these marks, proceed till you come before Brouage.

The tides are at 4 o'clock, and the currents very strong.

To go to Seudre, or to pass through Maumusson, it is necessary to have the country pilots; for these channels are not very steady, and particularly that of Maumusson. They change very often, and are besides very winding and narrow, with a multitude of banks and rocks, which cannot well be described.

OLERON.

The Isle of Oleron is above $5\frac{1}{2}$ leagues in length, S E and N N W, and 2 leagues over in the broadest part. It is almost entirely surrounded with banks, and therefore it is not safe to approach it too near. On the southern side between the point of Maumusson and the end of Oleron are several banks, which almost bar the passage, and leave generally but a very narrow channel, and shifting very often. This passage is called Passe, or Pertuis de Maumusson.

General Directions for sailing in between the ISLE of OLERON, ISLE D'AIX, and ISLE DE RE', by an English Officer.

The leading mark to avoid the shoals on the west side of the Isle D'Aix, is to bring Fort Madam open with the S W point of the island, then the said point will bear S S E. Keep the mark a handspike's length open, and you will have 7 or 8 fathoms water: this mark will do for an eastern turning mark. For your western turning mark there is a spire steeple on the main, to the southward of Brouage steeple (which is also a spire steeple); keep it a

large sail's breadth open with the southernmost point of Oleron, and that will bear S by E. Observe not to approach Oleron nearer than 12 or 11 fathoms water ; nor Isle de Ré nearer than 6 or 7.

ROCHE BONNE, and LES BANCHES VERTES.

About 14 leagues W $\frac{1}{4}$ N of the northern point of Oleron, and 8 leagues southward of the eastern point of Isle d'Yeu, lie 2 rocky banks, called Roche Bonne, and Les Banches Vertes. These rocks appear even with the water at low tide. The first bank is above 1 league in length, and the second near $\frac{3}{4}$ of a league. They are near each other, and there is a passage between them, with sufficient depth for the largest ships ; however, they are very dangerous, and require great caution.

From Oleron, or the entrance of Maumusson, to Point la Coubre, it is necessary to keep off at sea a little wider, because of several points of banks, stretching off from the Isle of Oleron, which must not be approached within 15 or 16 fathoms water. Then you may sail near the coast of Arvert, if you choose to pass through the Petite Passe, which is along that coast, and must steer very close to the shore till you are got within the river of Bourdeaux. This passage is very narrow, having no more than $1\frac{1}{2}$ fathom, or 2 fathoms water, and serves only for barks which enter that way with the tide ; but it is very inconvenient, as high winds make there a great swell.

Sailing Instructions for the ENTRANCE of the GIRONDE, or RIVER of BOURDEAUX ; by Mons. MAGIN, Engineer to the French Navy.

The entrance of the River of Bourdeaux is easily known by a fine light-house, commonly called Tower of Cordouan, which is of the greatest utility in lighting ships during the night, and being their guide in the day-time.

The disposition of the rocky and sandy banks which lie at the mouth of this river, makes five channels, through which the vessels enter, viz. the Channel of Charantais ; Channel of Matelier, or of Saintouge ; Channel of Lescameau ; Channel of La Porte ; and Channel de Graves.

To enter by the CHANNEL of CHARENTAIS.

The Tower* of Cordouan, and the Wooden Tower on Point La Coubre, are necessarily to be seen in order to make your way with safety between the Grand Bank of Matelier and the banks of Point La Coubre; the bad situation of this channel ought to make it at all times to be avoided; but in case you should be forced to go through it, you are to sail towards the Tower of Cordouan S $\frac{1}{4}$ E till you bring the Wooden Tower to bear east; then steering S E $\frac{1}{4}$ E, to pass $\frac{1}{4}$ of a league without Point La Coubre, you continue that course till the Wooden Tower is bearing N $\frac{1}{4}$ W, and from thence you steer S E $\frac{1}{4}$ S, keeping Point Grave a little open. In this track when you shall have the Tower of Cordouan to S W, you will be past the English Bar, which is a very dangerous shoal; but all that part of the river beyond it, from Point Terre Negre to Royan, is clean, with deep water.

If a ship was obliged to make boards, she ought, after having passed Point La Coubre, to keep between the N W $\frac{1}{4}$ N, and the S E $\frac{1}{4}$ S of the Wooden Tower, having the same bearing with Point Grave. This precaution is necessary to avoid the English Bar, and to remain at a proper distance from the rocks of Cordouan, where the current catches generally the ships which come too near them during the ebb, or at half tide going down.

To enter by the CHANNEL of MATELIER.

This Channel having from 25 to 26 feet at low water, may be entered by the largest ships; when you come from the northward you are to steer to-

* This tower, the most magnificent light-house in Europe, has been erected by order of Henry IV. it was began in 1584, by Louis de Foix, and finished in 1611: its height was 169 feet, French measure; but in 1727 the upper part of it being found calcined, at that time, by the force of the fire, an iron lanthorn, in the form of a dome, was substituted in its place. This lanthorn is supported by four strong iron pillars, the whole being 22 feet high, so that the present height of the tower, and lanthorn taken together, is 175 feet. The diameter of this vast fabric, is 20 fathoms, and 5 feet, French measure, and the gate opens to the E S E. The fire-place on the top holds 225 pounds of coals, which being lighted every night, when the sun sets, continues burning till his rising next morning.

wards the Tower of Cordouan S E $\frac{1}{4}$ E, and to sail in this direction till you see the two beacons, or marks, in one, which are on Point La Coubre : then keeping them on, you sail till within $\frac{1}{2}$ a league of the land, where you change your course, as in the Channel of Charentais.

We have supposed, in the courses just described, that the two beacons on Point La Coubre had been seen ; but as it is seldom that you can see both of them at such a great distance, we will give other directions for the course, provided you see only one of the beacons, or the breakers of Point de Cuivre.

1. If in sailing to the S E $\frac{1}{4}$ E, towards the Tower of Cordouan, you should descry but one of these beacons, you are to continue the same course till you bring this same beacon E N E, and keeping it in that direction, you pass within $\frac{1}{4}$ of a league of Point de Cuivre, from whence the same course is to be followed till within $\frac{1}{2}$ a league of the land ; and then you proceed as it has been explained in the Channel of Charentais.—2. If in hazy and dark weather you could see none of the two marks on Point La Coubre, you ought to steer for the Point de Cuivre, which is always known by its breakers being more heavy than the others.

After you have approached the Tower of Cordouan, at the distance of 3 leagues S E $\frac{1}{4}$ E, the breakers of Point La Coubre will bear N E 1 league, and Point La Coubre E N E. Then you are to shape your course to E N E, and to sail within $\frac{1}{4}$ of a league of Point de Cuivre. In this track, when you have brought the Tower of Cordouan to bear S E $\frac{1}{2}$ S, you are to steer so as to bring the breakers of Point de Cuivre to the W $\frac{1}{4}$ S and E $\frac{1}{4}$ N, and then to continue the same course till within $\frac{1}{2}$ a league of the land, to proceed afterwards as it is explained in the Channel of Charentais.

If a ship coming from the offing would enter by the Channel of Matelier, she could steer towards the Tower of Cordouan, east, or E $\frac{1}{4}$ N, or E N E, or N E $\frac{1}{4}$ E, or N E ; but we advise to prefer the E $\frac{1}{4}$ N.

If you have steered E $\frac{1}{4}$ N towards the Tower of Cordouan, this course is to be continued till the Church of Soulac is bearing S E $\frac{1}{4}$ E. Then you steer north to get a sight of the breakers of Point Cuivre, after which you proceed as it has been said before.

The CHANNEL OF LESCAMEAU.

This Channel is very narrow, and is made use of only on account of the sure marks they have on shore to direct the course between the Matte and the Mauvaise, which are to be ranged along at a very little distance. These marks are the Tower of Cordouan, the Breakers of Point de Cuivre, the Steeple of St. Palais on with the beacon, or that Steeple a sail's breadth open with the Wood.

When you enter by this Channel, you are always to get a sight of the Breakers of Point de Cuivre, and to approach them within $\frac{1}{2}$ a league, bringing the Tower of Cordouan to bear S E $\frac{1}{4}$ S. Then your course must be shaped so as to bring St. Palais Steeple on with the Beacon, or a sail's breadth open with the Wood. As soon as you have them in that direction, you steer towards them, and keep them on till the Tower of Cordouan remains to S S W ; then you will have no difficulty to proceed to the road of Verdon.

The CHANNEL OF LA PORTE.

This Channel has the least water of any, and is badly situated, on account of the Tower of Cordouan, which you are to range along very near. Its marks are the Point Grave on with the south part of La Valiere Point ; but La Valiere Point being seldom distinguished at such a distance, the Channel is often entered with the help only of the compass, and of the computed distance of the Tower of Cordouan : if necessity should oblige you to go through it, you are to steer E $\frac{1}{4}$ N for the Tower of Cordouan, continuing this course till Soulac Church is bearing S E $\frac{1}{2}$ S ; then you sail towards Point Grave, keeping to the E $\frac{1}{4}$ S, and taking care that when the Tower of Cordouan is bearing north, your distance is to be no more than $\frac{1}{4}$ of a league from it : you will then steer to the east, giving to Point Grave a sufficient birth to double it.

CHANNEL DES GRAVES.

The marks for this Channel are the Church of Soulac on with the beacon ; the Tower of Cordouan ; Point Grave ; Royan, its Windmills ; and the Castle of St. Palais.

From whatever part you come to enter this Channel you are always to shape your course towards the Church or the Windmill of Soulac, between E S E and E $\frac{1}{4}$ S, or towards Soulac's Church brought on with the beacon. This course is to be kept till the Tower of Courdouan is brought to bear between N E $\frac{1}{4}$ N and N N E; then you steer towards Grave Point, keeping it E N E till the Tower of Cordouan remains to N W. This bearing will bring you within $1\frac{1}{8}$ of a league from the shore, which must be coasted along at this distance, till you are past Ruffiat, after which you take a greater offing to round Grave Point with greater safety.

They often pass between the east Matte of the Chevrier and Ruffiat; in that case you must steer towards the Castle of St. Palais. As soon as it is bearing N N E, and when, during this course, the Tower of Cordouan is brought to bear W N W, you go on, keeping Royan's Mills E $\frac{1}{4}$ N till you have doubled Grave Point.

When ships have sailed beyond this point they generally come to an anchor in the road of Verdon, or in that of Royan. The marks for the best anchoring grounds are, St. George's Windmills on with the middle of the two Sand-downs, called Terrier de l'Attache, and St. Peter's Church of Royan on with the Point, or Meche's Windmills to the E $\frac{1}{4}$ N.

When you set sail from the road of Verdon to go to Bourdeaux, you steer towards Meche's Windmills, keeping them S E $\frac{1}{4}$ E, and this course is continued till you see the steeple of St. Peter's Church of Royan in one with La Valiere Point; then shaping your course south, you avoid the Marguerites, the Banks of Tallemont, and Talais, and that which is called Le Bec de Jau.

On the new and full moons it is high water to the northward of the Tower of Cordouan at 30 min. after 4 o'clock, and to the south of it 15 min. later. The perpendicular rise is 14 or 15 feet, and in the neap tides only 7 or 8 feet. The tides during the months of May, June, and even a part of July, are very small; the Magdalen tides (the 22d of July) are often as high as those of the equinoxes, which rise to 17 or 18 feet. The winds have a great influence on the tides; and in general you may depend upon a good tide when it blows strong into the river; and a lesser one must be expected with a strong wind blowing towards the sea.

N.B. All the bearings mentioned in these instructions are by the compass, whose west variation is now about $21^{\circ} 15'$; this variation has been observed to increase westerly about $10'$ every year.

Continuation of the Course to BOURDEAUX, by DU BOCAGE.

When Pouillac, known by its steeple, is on your west, you must then stand E S E till you come before Blaye, leaving the isle on your larboard. You are obliged to anchor at Blaye, for exhibiting a bill of your cargo. The passage between Pouillac and Blaye is somewhat shallow, and it is good to take an hour or two of the tide with you, when you have a ship that draws above 8 or 9 feet.

When you sail from Blaye to Bourdeaux, you must steer along the northern coast, always keeping in 3, 4, or 5 fathoms water: but when you come before the mouth of the Dordogne, you stand off to the Three Isles in the middle, the easternmost of which is the biggest. You leave them all on your starboard, coasting near them till you are within the eastern point of the entrance of the Dordogne, on which stands a gibbet. You must then proceed in your course, nearer to the northern than to the southern coast, as far as the four little houses; from whence you must range along the southern coast as far as the tower of Dublot; then steering S E $\frac{1}{4}$ E by the point of Lermont, you pass between two banks, one of stone on the larboard, and the other of sand on the starboard. This channel is called the Pass, and is the shallowest of the river; for at low water it has not above 7 or 8 feet water, and you must wait for the tide to go over it. When you are before Point Lermont, at a small distance, you steer S W $\frac{1}{2}$ S till you approach the western coast, by which you keep till you arrive before Bourdeaux, where you anchor in 4, 5, or 6 fathoms water.

COAST of ARCASSON, and RIVER of ANCHISE.

From the river of Bourdeaux to Arcasson the coast runs $17\frac{1}{2}$ leagues southward; it is all low, even, and sandy land. Half way is the little river of Anchise, capable only of small vessels; it is of difficult access, and dry every tide; wherefore it is very little frequented.

A N E or a S W moon makes high water, which is at 3 o'clock on the days of the new and full moon.

BASSIN D'ARCASSON.

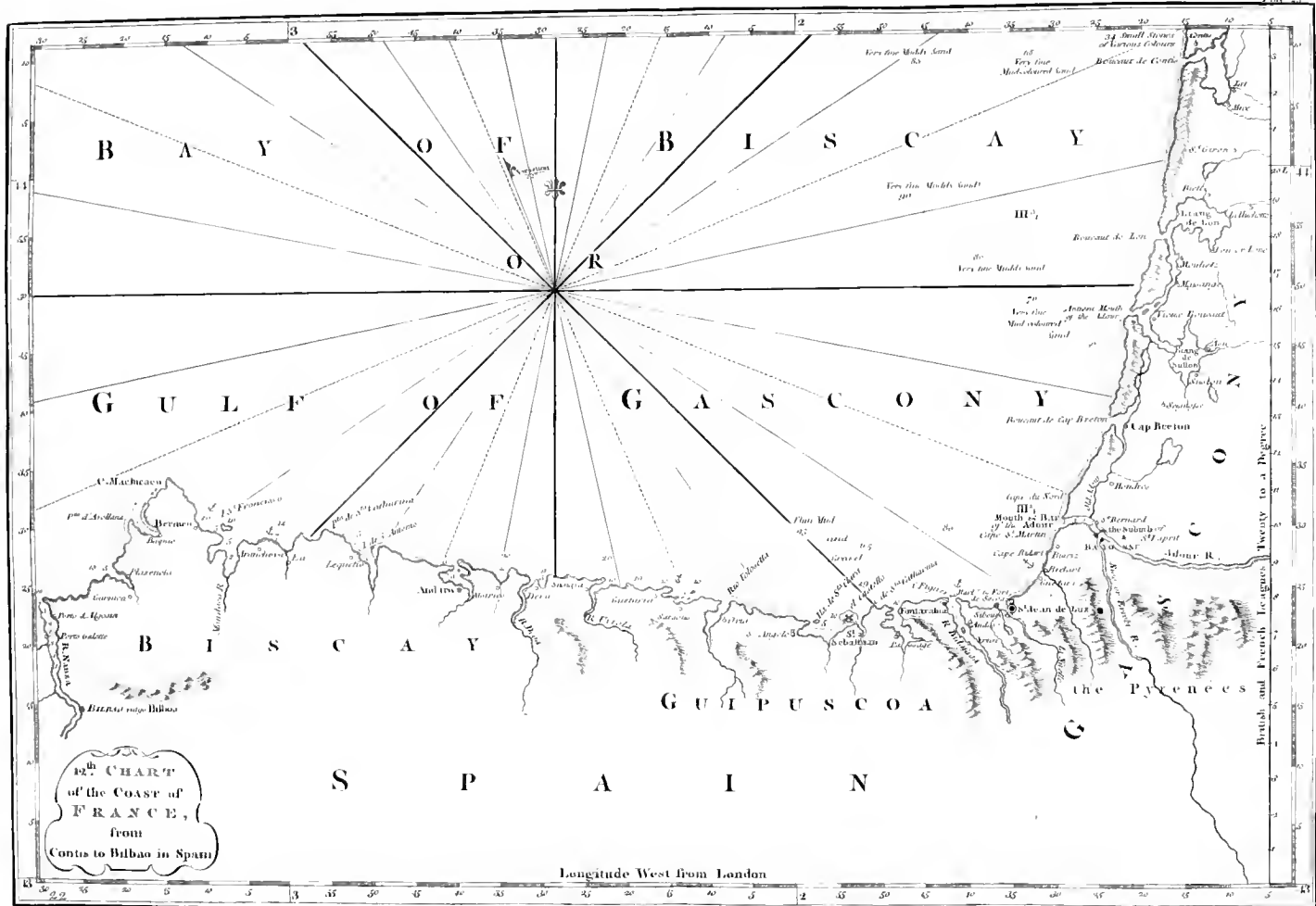
Before the Bassin of Arcasson there are several banks, which block up the entrance, and leave only two little channels, one along the northern point of the harbour, and the other to the south of the isle which is in the entrance within the banks.

When you enter by the northern channel, you bring the northern point N E $\frac{1}{4}$ E, or N E, and steer thus till you approach the point, near by which you pass. When that is passed, you continue steering N E $\frac{1}{4}$ E and E N E to the point of the southern shore, which is within the said harbour, at which you make a little tack because of a small sandy hook, which projects a little wide off that point, and should be avoided. When you have doubled that point, you steer along close by the southern shore, as the lead guides, and cast anchor where you please in 10 or 15 fathoms water, or farther inwards in 3 or 4 fathoms.

A little to the north of the northern point of the entrance into this haven, is a bank, which extends W $\frac{1}{4}$ S at least $\frac{1}{2}$ a league into the sea. This bank may be approached within 3 or 4 fathoms water.

SOUTHERN CHANNEL, called the PASSE DU PAPON.

In order to pass southwards of the isle which lies before the Bason of Arcasson, you must steer by the banks, with the lead in 4, 5, and 6 fathoms water, till you come in view of two great masts erected on the land; you must bring these in one, and keeping them on you steer by them till you are within the isles, which you may leave on your larboard, that is to say, on the north. These marks lie nearly E N E, bearing a little to the N E $\frac{1}{4}$ E. When you are got within the isles you must steer N N E, a little northerly, as far as the southern point within the harbour, where you must tack about, because of a sandy point which projects from it, and must be avoided. When it is doubled, you must steer along the southern shore, and anchor where you please, as aforesaid, for there is water enough on that side;



British and French Leagues, Twenty to a Degree

though both entrances of this Bason have not above 2 or 3 fathoms water at low tide.

The tides are at $\frac{3}{4}$ after 3 o'clock, at new and full moon.

One may easily descry the Banks of Arcasson when near them, for the sea breaks there continually, and it is very easy to approach them with the lead, as they rise gradually: wherefore in fair weather you find no difficulty in sailing near them by the help of soundings.

The marks to know when you are near Arcasson, are a low, level land, destitute of trees, on the north side of its entrance; and on the south side high downs, which appear like little mountains.

B A Y O N N E.

From the entrance of Arcasson to the mouth of the river Adour, which runs through Bayonne, the coast runs 21 leagues south, the land all low and level, except some little downs, covered with pines and other trees, which appear more elevated than the rest.

The river of Bayonne lies between two sandy hillocks, very level. On the southern shore are erected two great masts, or sea-marks, which you must bring together, and so steer till you are within the river. On the same side, to the S E, stands a little wooden jetty, by which you sail, leaving it on your starboard; continue to range along the southern coast closer than to the northern, till you arrive before the city, that is to say, below the bridge, where you anchor in 4, 5, or 6 fathoms water.

The bar of Bayonne being very subject to change, you are obliged to take a pilot for getting safe over it. The sea also is very rough, and at low water is not above 3 or 4 feet deep, so that there is no entrance but at high water.

The tides set N E and S W, that is at 3 o'clock, or a little later.

St. J E A N D E L U Z.

From the Bar of Bayonnè to St. Jean de Luz, the coast runs near 3 leagues S S E; the whole land is of a moderate height on the sea shore, but farther inland you see nothing but high mountains, and among the rest those

of St. Jean de Luz, which are the highest of all. St. Jean de Luz is situated at the farther end of a bay, which affords anchorage in 5, 6, 7, or 8 fathoms water; but the bottom is full of rocks, which cut the cables. There are two harbours at St. Jean de Luz; one under the town, that is dry every tide; the other at the western side of the bay. To enter the harbour under the town, it is necessary to pass between St. Jean de Luz and Siboure, which is another town on the western side of that harbour. The entrance is very narrow, and only practicable at high water; besides it will admit none but small ships of 150 or 200 tons at most, which draw 11 or 12 feet.

The harbour on the western side of the Bay of St. Jean de Luz is called Socoa. It is dry every tide, but however receives all the great ships belonging to the place, and shelters them from all winds, though it be thought expedient to fasten and secure them with four cables from the great surge, which happens whenever the sea is ruffled by the N W, north, or N E winds; these make a very great swell in the Bay of St. Jean de Luz, which is communicated, by the rebounding of the waves, to the harbour of Socoa.

The marks to know St. Jean de Luz are a high tower, situated on the extremity of the eastern point of the bay, and on which a fire is lighted; and on the western side, above Socoa, is a house placed, which is a signal for that bay.

The tides here are N E and S E.

TIDES AND CURRENTS.

At Hodierne, River du Pont l'Abbé, Quimper River, and Concarneau, it is high water from $\frac{1}{4}$ after 3 to 4 o'clock.

At Port Louis it is high water at 4 o'clock on the days of the new and full moon.

Along the Cardinal Rocks the currents are very strong; and the moon in the N E $\frac{1}{4}$ E, or S W $\frac{1}{4}$ W, makes high water.

At the entrance of the rivers of Vannes and Auray it is high water at 45 min. after 3 o'clock, on the days of the new and full moon; and the tide sets S W $\frac{1}{4}$ W, or N E $\frac{1}{4}$ E.

At the mouth of the river Vilaine the tide rises $1\frac{1}{2}$ or 2 fathoms perpendi-

cular ; and on the days of the new and full moon, it is high water at 45 min. after 5 o'clock.

At Croisic the moon in the N E $\frac{1}{4}$ E, and S W $\frac{1}{4}$ W, makes high water.

At Nantes, in the river Loire, the currents are very violent ; and the moon, like at Croisic, in the S W $\frac{1}{4}$ W, or N E $\frac{1}{4}$ E, makes high water.

At Noirmoustier, and the bay of Bourgneuf, it is high water at 4 o'clock on the days of new and full moon.

At the Isle d'Yeu there is commonly a great sea, and the tides set N E and S W.

At St. Gilles it is high water when the moon is in the N E or S W points.

In the harbour of Olonne the tides set N E and S W 3 hours.

In the Pertuis d'Antioche it is high tide from $\frac{1}{2}$ an hour after 3 to 4 o'clock, at the new and full moon.

At Brouage the currents are very strong, and it is high water at 4 o'clock.

At the mouth of the river of Bourdeaux the currents are very strong, and within the river the tides set N E and S W.

On the coast of Arcasson a N E or a S W moon makes high water, which is at 3 o'clock on the days of the new and full moon.

In the Bassin of Arcasson, on the days of the new and full moon it is high water at $\frac{3}{4}$ after 3 o'clock.

At Bayonne the tides set N E and S W ; it is high water at 3 o'clock, or a little after.

At St. Jean de Luz the tides set also N E and S W.

Account of the DEPTHS of WATER and NATURE of the GROUND, from the BEC DU RAZ to the Mouth of the River of BOURDEAUX ; by M. DU BOCAGE.

Two leagues S W of the Raz, you have from 25 to 26 fathoms water ; very fine grey and white sand.

Twelve leagues west of Audierne, 60 fathoms ; grey and white sand.

Ten leagues west of L'Etoc de Penmark, from 65 to 68 fathoms ; grey sand.

Five leagues S W $\frac{1}{4}$ S from the said place, from 60 to 62 fathoms ; fine slimy sand.

Seven or 8 leagues south of Glenan, from 50 to 55 fathoms ; grey sand, speckled with black.

Ten leagues south of the Isles aux Moutons, 60 fathoms ; the ground as the preceding.

Five or six leagues S W $\frac{1}{4}$ S from Belle-isle, 55 fathoms ; coarse mixed gravel, mostly red and glittering.

Ten leagues S S E from Belle-isle, 40 fathoms ; all a mixture of grey sand, and putrid pebbles, with shells of all sorts, and some awl-points.

Twelve leagues south of Belle-isle, 70 fathoms ; grey and slimy sand.

Ten leagues south of Belle-isle, 65 fathoms ; brown and muddy sand.

Eight or nine leagues W $\frac{1}{4}$ S from Belle-isle, 65 fathoms ; same ground.

Seven leagues S W from Belle-isle, 60 fathoms ; same ground.

Four leagues S W $\frac{1}{4}$ W from Belle-isle, 55 fathoms ; same ground.

Between Belle-isle and Isle d'Yeu, from 25 to 28 fathoms : coarse red sand.

Four leagues S W $\frac{1}{4}$ S from the Pillier, 18 fathoms ; a mixture of coarse red sand, and some clear flints, with a small quantity of fine shells.

Five leagues N W $\frac{1}{4}$ W from Isle d'Yeu, 26 fathoms ; thin red sand, somewhat spotted with black, and some awl-points.

Three or four leagues west of Isle d'Yeu, 31 fathoms ; coarse red sand, with a small quantity of bits of shells.

Three leagues S $\frac{1}{4}$ E from Isle d'Yeu, 26 fathoms ; coarse red gravel, clear and shining.

Between Isle d'Yeu and Isle de Ré, 2 or 3 leagues off the land, from 25 to 28 fathoms ; red sand.

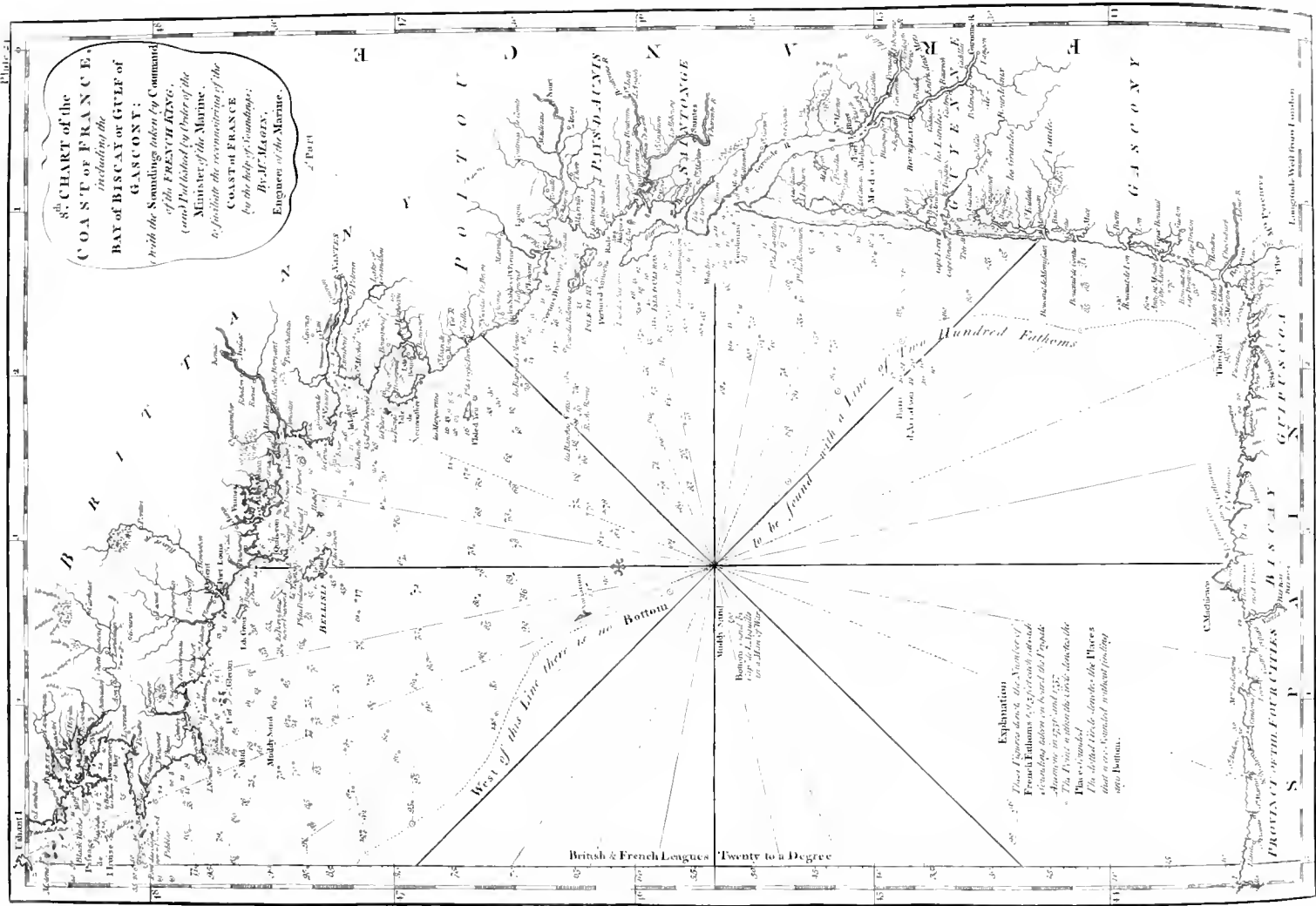
A league and a half W N W of the tower of Aix, 12 fathoms ; coarse red sand.

Six or seven leagues west of Isle de Ré, 35 fathoms ; red vermilion sand.

Five leagues W S W of the Pertuis of Antioche, from 32 to 34 fathoms ; red sand.

One league west, and W N W of the Asnes de Bourdeaux, 12 fathoms ; grey sand.

8th CHART of the
COAST of FRANCE,
including the
BAY of BISCAY or GULF of
GASCONY;
with the Soundings taken by Command
of the FRENCH KING,
(and) Published by Order of the
Ministry of the Marine,
to facilitate the reconnoitring of the
COAST of FRANCE
by the help of Soundings;
By M^r MATHIEU,
Engineer of the Marine.



Explanation
These Figures denote the Number of
French Fathoms of French Measure
Soundings taken on board the *Épave*
Aurore, in 1771 and 1772.
The Point where the circle denotes the
Place where the *Épave* was found.
The dotted line denotes the Place
where the *Épave* was found without finding
any Bottom.

British & French Leagues Twenty to a Degree

Longitudes West from London

All along the coast of Oleron, at a league's distance from the shore, from 18 to 20 fathoms ; grey sand.

SOUNDINGS in the BAY of BISCAY, taken by command of the *King of France*, and published by order of the *Naval Minister* ; by *Mons. MAGIN*, *Engineer of the Navy*.

I. SOUNDING. in *Lat.* $48^{\circ} 23' 30''$. *Long.* $3^{\circ} 12' 45''$.

- 92 Fine grey sand, pricked with black.
- 106 Fine grey sand, mixed with small shells and broken bits.
- 110 Grey sand, mixed with bits of brown shells.
- 108 Grey sand, mixed with bits of shells and brown gravel.
- 117 Grey sand, mixed with bits of shells and gravel.
- 104 Grey sand, mixed with shells and gravel.
- 110 Grey sand, mixed with small cornet shells.
- 108 Sand, mixed with gravel, shells, and small cornets.
- 108 Whitish grey sand, mixed with stones as big as beans, others less, flat, brown, and whitish.
- 100 Sand of a whitish grey, mixed with bits of shells and fine cornets.
- 98 Coarse sand, mixed with bits of cockle-shells.
- 90 Whitish grey sand, mixed with bits of shells, and some brown and yellowish small stones.
- 84 Whitish grey sand, mixed with barley beards.
- 80 Whitish grey fine sand, mixed with bits of thin shells, and fine cornets.
- 79 Whitish grey sand, mixed with barley beards, and fine small shells.
- 75 Fine grey sand, mixed with bits of shells.
- 75 Whitish grey sand, spotted with red, and mixed with bits of shells.
- 70 * Whitish coarse shining sand, mixed with fine shells.

* The sounding at 70 fathoms, that is, 6 leagues to the west of Ushant, has been found to be of small fine pebbles, and small brown stones, mixed with fine cornets and awl-points.

The sounding at 72 fathoms, that is, 4 leagues N by W of Ushant, has been found to be of fine grey sand, mixed with bits of fine shells, with the rind of cheese, awl-points, and fine cornets.

- 65 Whitish coarse shining sand, mixed with barley beards and corals.
- 64 Whitish grey coarse sand.

II. SOUND. *Lat.* $48^{\circ} 12' 40''$. *Long.* $1^{\circ} 35' 25''$.

- 108 Whitish grey sand, pricked with black, and cockle-shells.
- 106 Grey sand, mixed with ground shells.
- 105 Grey sand, mixed with cornets, gravel, and shells.
- 105 Sand, mixed with yellow, and bits of shells.
- 103 Sand, mixed with bits of shells, small stones, and gravel.
- 77 Grey sand, mixed with bits of shells, and small stones.
- 90 Grey sand, mixed with bits of shells, cornets, and coral.
- 85 Grey sand, mixed with bits of shells of divers colours.
- 80 Grey sand, mixed with bits of shells.

III. SOUND. *Lat.* $47^{\circ} 47'$. *Long.* $1^{\circ} 22' 5''$.

- 163 Very fine grey sand, mixed with small fine shells.
- 105 Coarse sand, mixed with bits of shells, and with small black and brown stones.
- 100 Ground shells, mixed with gravel, and shells like barley straw.
- 92 Ground shells, mixed with very fine small shells, and with small stones, and a little barley straw.
- 80 Sand, mixed with small stones like coarse gravel, and a few small shells.
- 80 Sand, mixed with bits of fine shells, and barley straw.
- 76 Bottom like bran, mixed with very fine cornets.
- 72 Bottom like bran, mixed with shells and cornets.
- 70 Sand, mixed with bits of fine shells, and onion peels.
- 52 Whitish grey sand, mixed with barley beards.
- 56 Coarse sand, mixed with fine shells.
- 44 Fine grey sand, at $1\frac{3}{4}$ leagues northward black stones.

IV. SOUND. *Lat.* $47^{\circ} 44' 50''$. *Long.* $1^{\circ} 7' 35''$.

- 105 Sand, mixed with bits of shells, and gravel of divers colours.
- 110 Fine sand, mixed with bits of shells.

- 115 Sand, mixed with bits of fine shells.
- 110 Grey sand, mixed with bits of fine shells.
- 88 Grey sand, mixed with gravel.
- 85 Grey sand, mixed with gravel of various colours.
- 82 Grey sand, mixed with gravel.
- 77 Grey sand, pricked with black.
- 65 Grey sand, pricked with black.
- 51 Fine sand, pricked with black.
- 44 Rocky ground.

V. SOUND. *Lat.* 47° 25' 50". *Long.* 0° 4' 15" east.

- 100 Coarse sand of a whitish grey, mixed with ground shells, and small white ones.
- 96 Coarse sand of a whitish grey, mixed with small shells.
- 99 Coarse sand of a whitish grey, mixed with bits of shells.
- 88 Whitish grey sand, mixed with bits of shells, and fine cornets.
- 85 Grey sand, mixed with fine shells.
- 79 Brown sand, a little muddy.
- 80 Grey sand, mixed with fine shells.
- 76 Grey sand, pricked with black.
- 75 Coarse bottom, mixed with muddy sand.
- 68 Brown mud.
- 61 Grey sand, a little muddy.
- 61 Soft and yellowish mud.
- 56 Brown mud.
- 50 Brown mud.
- 38 Gravel, coral, and shells.

VI. SOUND. *Lat.* 47° 20'. *Long.* 0° 23' 15" east.

- 107 Ground shells, mixed with very fine small shells.
- 95 Very fine brown sand, mixed with bits of shells, and small flat stones.
- 90 Coarse sand, spotted with yellow, mixed with bits of shells, and long slender cornets.

- 88 Coarse sand, spotted with yellow, mixed with bits of shells and cornets.
- 85 Fine sand, a little yellowish.
- 85 Slate colour sand, mixed with very fine shells, and small flat stones of divers colours.
- 77 Fine yellowish sand, mixed with bits of shells.
- 75 Fine yellowish sand, with white spots.
- 75 Fine sand, a little yellowish.
- 70 Soft mud.
- 65 Fine sand, a little yellowish.
- 58 Soft mud.
- 45 Gravel and coral.
- 23 Pebbles of divers colours.

* *A Continuation of the VI. SOUND. To begin at the Point A.*

- 73 Fine grey sand, a little slaty, and fine shells.
- 70 Small gravel, mixed with stones as big as beans, and with bits of fine shells.
- 67 Fine sand, a little yellowish.
- 60 Fine muddy sand.
- 65 Coarse sand, mixed with small flat stones, and with bits of shells.
- 58 Muddy ground.
- 53 Muddy ground.

VII. SOUND. *Lat.* 47° 8'. *Long.* 0° 43' 45" east.

- 107 Coarse sand, mixed with fine yellowish cornets.
- 92 Grey sand, mixed with fine yellowish cornets.
- 87 Grey sand, mixed with fine cornets.
- 87 Grey sand, mixed with fine cornets.
- 82 Gravel and shells.
- 70 Coarse brown sand.

VIII. SOUND. *Lat.* 46° 57' 18'. *Long.* 0° 54' 35" east.

- 95 Fine brown sand, mixed with bits of shells and coral.

- 86 Fine brown sand, a little muddy.
- 80 Fine greyish sand.
- 80 Fine sand, mixed with bits of shining shells.
- 75 Fine, but muddy sand.
- 72 Fine brown sand, mixed with bits of fine shells.
- 70 Fine yellowish sand, pricked with black.
- 61 Brownish gravel, mixed with flat stones.
- 47 Coarse sand and gravel, mixed with small stones.
- 45 Gravel.
- 45 Brown gravel, mixed with bits of shells.

IX. SOUND. *Lat.* 46° 54'. *Long.* 1° 22' 15" east.

- 90 Gravel, mixed with small brown stones, and fine cornets.
- 82 Fine grey sand, but a little muddy.
- 80 Fine sand, but a little muddy.
- 75 Very fine sand, mixed with small stones.
- 72 Fine grey sand.
- 67 Fine, but muddy sand, mixed with bits of shells.
- 60 Coarse sand, mixed with stones as big as beans.
- 40 Fine sand, mixed with bits of shells, and small pebbles.
- 30 Gravel.
- 20 Sand, mixed with gravel, and bits of shells.
- 18 Grey sand.
- 15 Rocky ground.

X. SOUND. *Lat.* 46° 35'. *Long.* 1° 19' 50" east.

- 148 Fine sand, mixed with fine cornets.
- 90 Fine sand, mixed with cornets.
- 88 Fine grey sand, mixed with very small and slender cornets.
- 85 Whitish grey sand.
- 80 Gravel and shells.
- 78 Fine grey sand, pricked with black.
- 73 Fine whitish grey sand.

- 68 Fine grey sand, pricked with black.
- 60 Thin mud.
- 47 Fine brown sand.
- 44 Brown mud, mixed with bits of shells.
- 30 Gravel, mixed with bits of shells.

XI. SOUND. *Lat.* 46° 25'. *Long.* 1° 49' 15" east.

- 90 Whitish sand, mixed with grey, and with small stones of divers colours.
- 86 Small greyish gravel.
- 83 Gravel, mixed with small stones.
- 78 Small reddish gravel.
- 73 Fine grey sand, mixed with a little mud.
- 68 Fine sand, mixed with a little mud.
- 60 Very fine sand, mixed with thin mud.
- 55 Fine grey sand.
- 48 Fine sand, but a little muddy.
- 40 Reddish sand, mixed with gravel, and small stones.
- 29 Grey sand, pricked with black.
- 24 Grey sand, pricked with black.
- 18 Grey sand, pricked with black.

XII. SOUND. *Lat.* 46° 5'. *Long.* 2° 13' 30" east.

- 90 Brown sand, mixed with fine cornets, and bits of shells.
- 82 Grey sand, mixed with small fine cornets.
- 84 Gravel, fine shells, and ground shells.
- 78 Gravel, mixed with small stones.
- 79 Very fine grey sand.
- 75 Fine brown gravel.
- 68 Fine grey sand, but a little muddy.
- 60 Muddy bottom.
- 38 Pebbles and gravel.
- 39 Coarse gravel, mixed with small stones.
- 30 Flat rocks, and small stones.

- 30 Grey sand, mixed with small stones.
- 26 Grey sand, a little pricked with black.
- 26 Sand, mixed with many bits of shells.
- 24 Fine grey sand.
- 16 Fine grey sand.
- 16 Grey sand.

XIII. SOUND. *Lat.* 45° 50'. *Long.* 2° 21' 15" east.

- 92 Fine brown sand.
- 78 Fine sand, mixed with bits of shells.
- 72 Sand, mixed with coarse gravel, and bits of shells.
- 68 Coarse brown sand, mixed with bits of shells.
- 66 Fine brown sand.
- 65 Coarse brown sand.
- 50 Yellowish sand, pricked with black.
- 45 Fine gravel, spotted with black.
- 37 Very fine sand, mixed with bits of shells.
- 23 Gravel, mixed with small stones of divers colours.
- 18 Fine sand, pricked with black.

Continuation of the XIII. SOUND. To begin at Point B.

- 89 Fine grey sand, mixed with small corals.
- 80 Fine whitish grey sand.
- 78 Coarse brown sand.
- 75 Fine brown sand.
- 64 Sand, and black mud.
- 52 Coarse sand, spotted with black.
- 40 Coarse sand of divers colours, mixed with bits of shells ; the whole of
a brown colour.
- 32 Coarse sand, mixed with bits of shells.
- 24 Coarse gravel.
- 18 Rocky ground.

XIV. SOUND. *Lat.* 45° 20'. *Long.* 2° 51' 15" east.

- 90 Fine brown sand.
- 86 Fine brown sand.
- 81 Fine brown sand.
- 71 Fine sand, but a little muddy.
- 69 Fine brown sand, mixed with bits of shells, and fine spiral cornets.
- 64 Coarse brown sand
- 52 Fine brown sand.
- 46 Fine sand, but a little muddy.
- 35 Fine brown sand, but muddy.
- 26 Grey sand, a little pricked with black.
- 21 Fine brown sand, but a little muddy.

Continuation of the XIV. SOUND. To begin at the Point C.

- 68 Fine grey sand.
- 62 Fine grey sand but a little muddy.
- 49 Fine brown sand.
- 44 Fine brown sand.
- 38 Coarse sand, mixed with small olive-coloured stones.
- 33 Gravel, mixed with stones.
- 32 Gravel, mixed with stones.

XV. SOUND. *Lat.* 45° 9' 15". *Long.* 3° 22' 15" east.

- 80 Very fine yellowish sand, pricked with black.
- 75 Yellowish sand, pricked with black.
- 65 Fine greyish sand.
- 55 Yellowish sand, pricked with black.
- 46 Fine brown sand.
- 38 Yellowish sand.
- 33 Sand, and black mud.
- 22 Fine grey sand.

XVI. SOUND. *Lat.* $44^{\circ} 52'$. *Long.* $3^{\circ} 48' 15''$ east.

- 85 Fine grey sand, but a little muddy.
- 62 Fine grey sand, but a little muddy.
- 30 Fine yellowish sand.

XVII. SOUND. *Lat.* $44^{\circ} 43' 50''$. *Long.* $3^{\circ} 44' 15''$ east.

- 110 Very fine greenish sand, or gravel. *
- 80 Very fine sand, but a little muddy.
- 55 Very fine sand, but a little muddy.
- 35 Very fine brown sand.

XVIII. SOUND. *Lat.* $44^{\circ} 7' 20''$. *Long.* $3^{\circ} 46' 10''$ east.

- 85 Very fine sand, but a little muddy.
- 68 Very fine mud-coloured sand.
- 34 Small stones of various colours.

XIX. SOUND. *Lat.* $43^{\circ} 56' 35''$. *Long.* $3^{\circ} 43' 10''$ east.

- 90 Very fine sand, but a little muddy.
- 80 Very fine sand, but a little muddy.
- 70 Very fine mud-coloured sand.
- 50 Very fine mud-coloured sand.

COURSES AND DISTANCES.

From the Raz of Fontenay to Port aux Cabestrans, E S E 2 leagues.

From Port aux Cebestrans to the Harbour of Hodierne, E $\frac{1}{4}$ S $1\frac{1}{4}$ league.

* About 3 leagues to the west of this sounding, and 12 leagues distant from the coast, lies the Bank of Arcascon, near 5 leagues in length from north to south, and $2\frac{1}{2}$ leagues in width. The depth of water upon this bank is from 10 to 15, 17, 20, and 22 fathoms; sandy ground.—*Note of the Editor.*

From Hodierne to the Rocks of Penmark, S E, a little southerly, $5\frac{1}{2}$ leagues.

From the Rocks of Penmark to the River of Pont l'Abbe, along the coast above 2 leagues.

From the River of Pont l'Abbe to the River of Quimper, E $\frac{1}{4}$ N 1 league.

From the Rocks of Penmark to Concarneau, east nearly $5\frac{1}{2}$ leagues.

From Concarneau to the Isles of Glenan, south 3 leagues.

————— to Port Louis, E $\frac{1}{4}$ N 8 leagues.

From Port Louis to the Isle of Grouais, south 2 leagues.

————— to the Point of Quiberon, S E $5\frac{1}{2}$ leagues.

From Point Quiberon to the Isle of Houat, south 2 leagues.

From the Isle of Grouais to Belle-isle, S S E 5 leagues.

From the east Point of Belle-isle to the Cardinals, east 3 leagues.

From the east Rock of the Cardinals to the mouth of the Rivers of Vannes and Auray, N $\frac{1}{4}$ W 5 leagues.

From the east Rock of the Cardinals to the mouth of the River Vilaine, N E by E 6 leagues.

From the River Vilaine to Croisic, south 4 leagues.

From Belle-isle to Croisic, east 9 leagues.

————— to the Bay of Bourgneuf, E S E $14\frac{1}{4}$ leagues.

————— to Isle d'Yeu, S E by E $15\frac{1}{2}$ leagues.

From Isle d'Yeu to St. Gilles, east $5\frac{1}{4}$ leagues.

————— to the Harbour of Olonne, S E by E near 8 leagues.

————— to the N W end of Isle de Ré, S E $\frac{1}{4}$ E $12\frac{1}{2}$ leagues.

From the south Point of Belle-isle to Isle de Ré, S E nearly 28 leagues.

From Point Sablancau, in Isle de Ré, to the Isle of Aix, S E by S 4 leagues.

————— to the Town of Oleron, S by E $6\frac{1}{2}$ leagues.

From Isle d'Aix to the mouth of River Charente, S E $1\frac{1}{2}$ league.

From Belle-isle to the Tower of Cordouan, S E, a few degrees to the south, 43 leagues.

————— to the Bar of Bayonne, S S E southerly 77 leagues.

From the Tower of Cordouan to the Bassin d'Arcasson, south 17 leagues.

From the entrance of Arcasson to the mouth of River Adour, on which stands Bayonne, south 21 leagues.

From the Bar of Bayonne to St. Jean de Luz, S S E 3 leagues.

CHAP. V.

Directions for Sailing along the COAST OF FRANCE in the MEDITERRANEAN, from CAPE DE CREUX to ANTIBES.

CAPE DE CREUX.

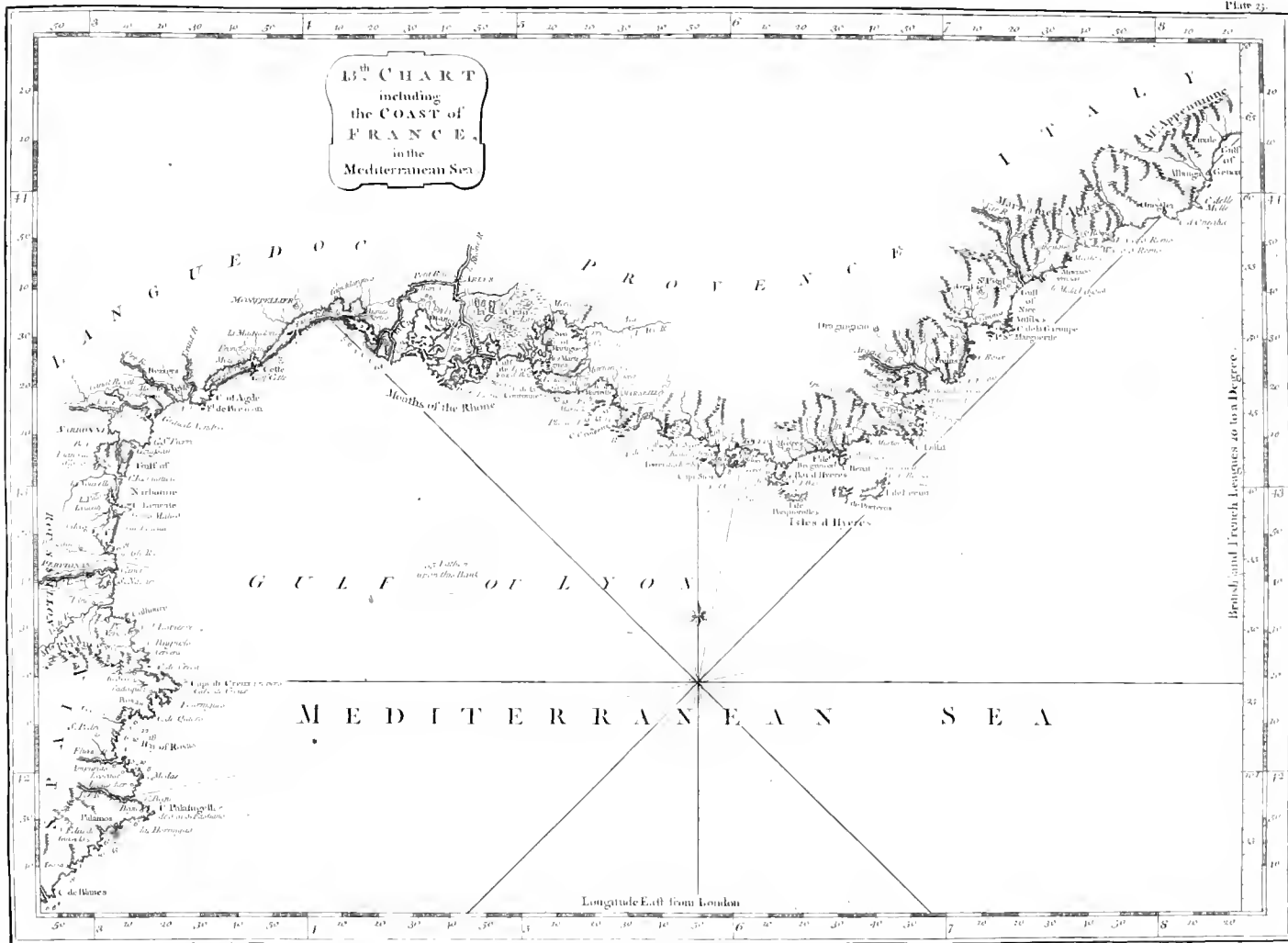
CAPE DE CREUX is easily known by a high tower ; and near 3 leagues to the N W of it lies the Bay of Lansan, in which there is good anchorage, under the town of the same name in 7, 10, 15, or 20 fathoms water, in proportion to your distance from the shore. About 2 leagues northward from Lansan, lies Port Vendre, where you may anchor in 10, 15, or 20 fathoms, under the town.

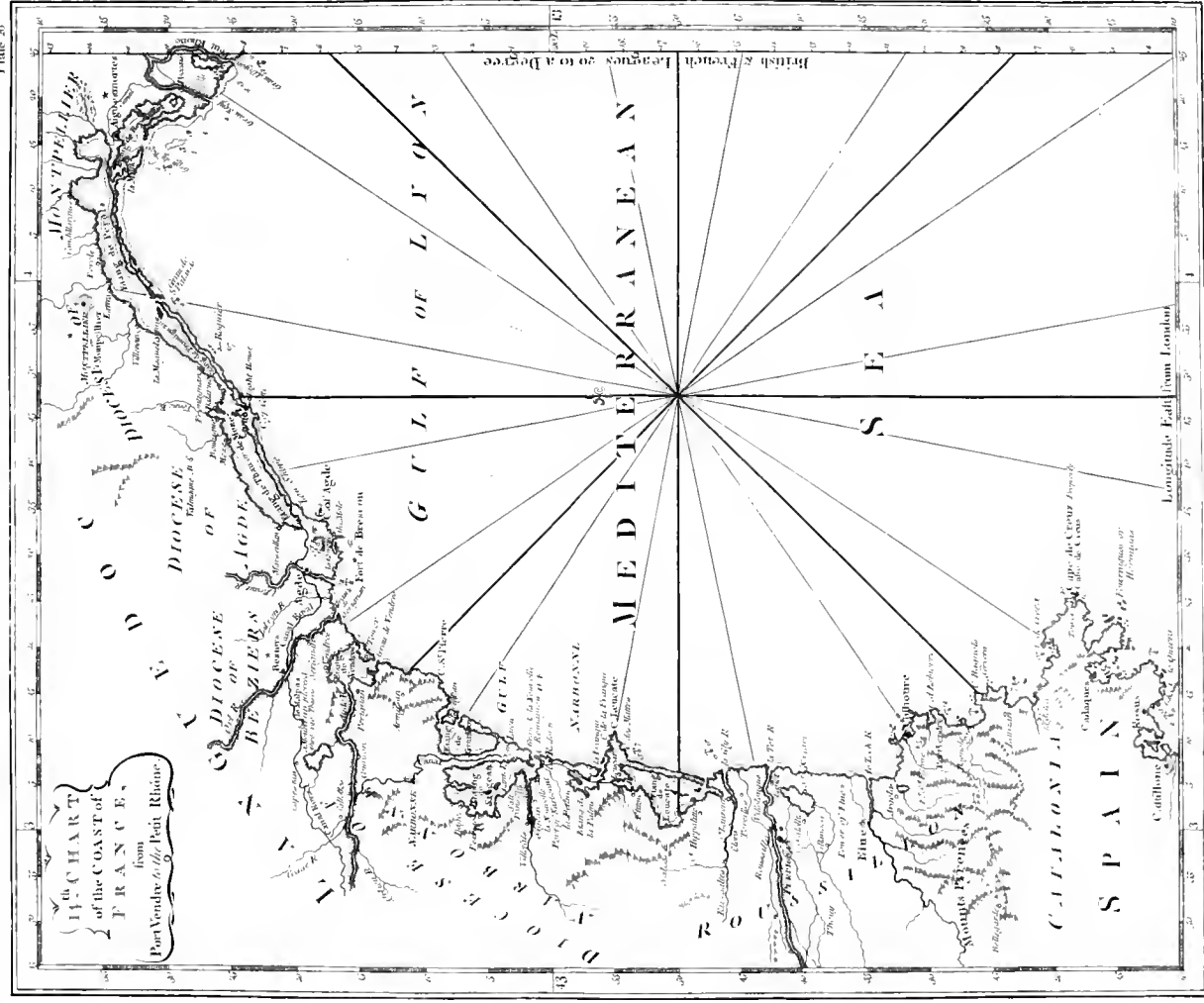
One league northward of Port Vendre, is the Port of Collioure, frequented only by small craft ; from its north cape the coast runs above 1 league to the east, and then it trenches $9\frac{1}{2}$ leagues almost north, to Cape Romaniou, which lies to the south of the entrance into the Port of Narbonne.

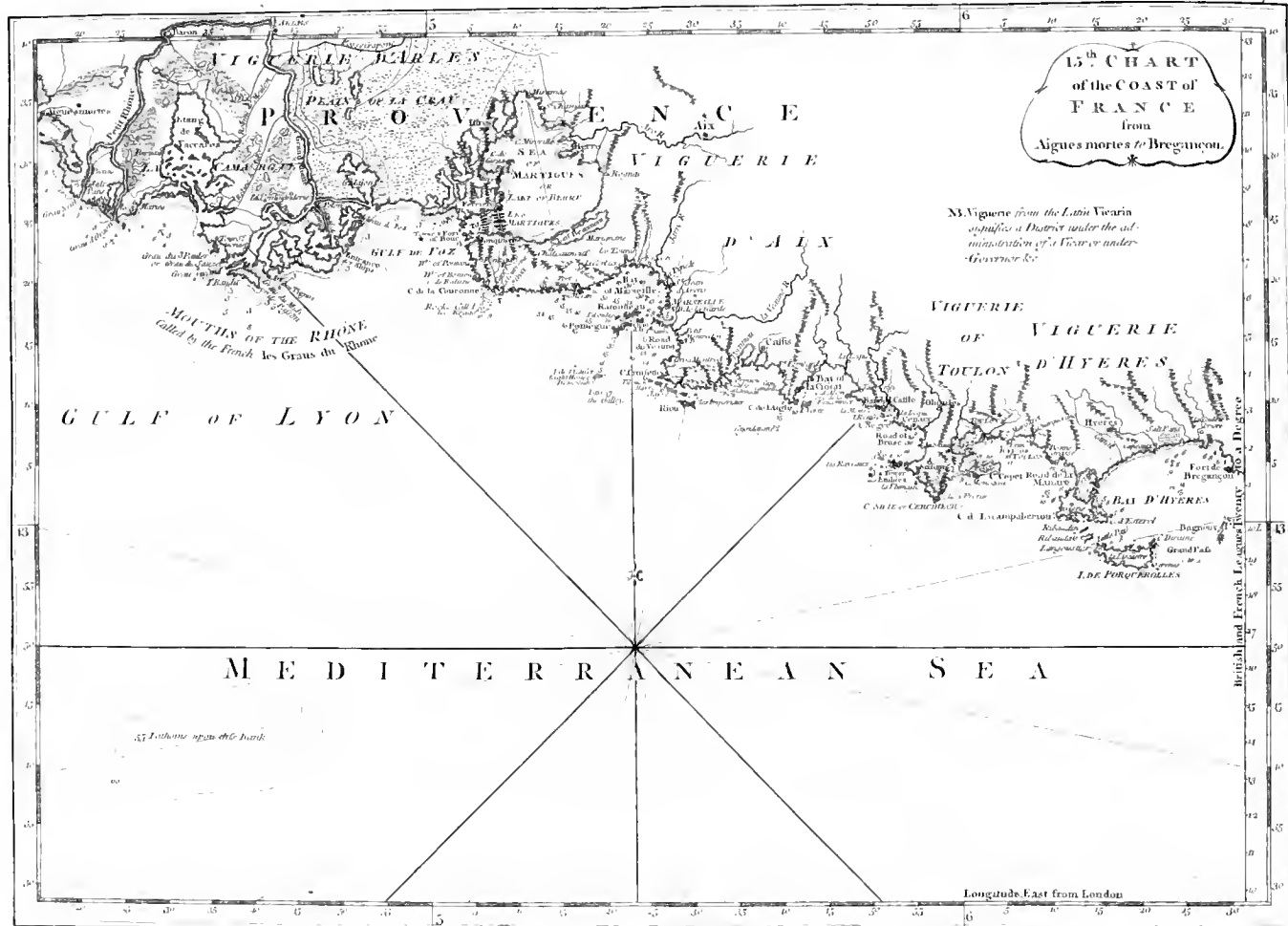
From Cape de Creux to Narbonne the land is of a moderate height, and one may anchor all along by it, as also before the entrance of Narbonne. But these are very bad roads ; for when the east or S E winds blow, they make such a swell that none will anchor there but in case of great necessity.

CETTE.

From the Port of Narbonne to Cette the course is E N E near 12 leagues ; the land between forms a great bay, and is of a moderate height. Above 4 leagues W by N of Cette lies the Rock of Brescon, or Brescou, on which is built a fort, and which is quite surrounded with shoals that stretch off near $\frac{1}{4}$ of a mile. The Cape of Cette is easily known by a round mountain upon it, and N E of it the land is all low, and level with the water. There is a port under the Cape of Cette, close to the town, fit to receive ships that draw 8 or 10 feet water. All along from Cette as far as the Tower of Bouc, or to the Martigues, the land is almost as low as the sea, forming a number







of isles, through which the Rhone discharges itself into the sea. Above 7 leagues from Cette is situated the town of Aigues Mortes, on the brink of a salt-pond communicating with the sea; but ships very rarely anchor there, because of the banks near those shores, the approach of which is to be avoided as much as possible, for the tides very often bear upon the land, and upon the banks. When you come from the Cape of Agde to Marseille, and the wind sits E S E, or south, you must take care of being driven within the bight of Aigues Mortes by the currents, which bear north and N W with great violence, whence frequent shipwrecks happen in these parts. The whole of that space is called Gulf of Lyon (from the city of that name), but the generality of sailors, on account of the frequent shipwrecks which happen there, call it the Gulf of Lions. When you are bound from the aforesaid Cape of Agde to Marseille, with the winds at S E or S W, and it happens to be night, or foggy weather, you must have frequent recourse to your lead: if at 2 or 3 leagues distance from land, within this Gulf, you find ground at 30 or 40 fathoms, you are immediately to tack about towards the coast of Catalonia; for along that coast, as well as the coast of Roussillon, the tides bear south along the land.

It is remarkable that the tides make the tour of the whole Gulf of Lyon, bearing to the north along the coast of Provence, to the west along the coast of Languedoc, and to the south along the coast of Catalonia. And when the wind is N W, which they call Maestro, the tides are the very reverse; for along the coast of Catalonia they bear to the north; to the east along the coast of Languedoc; and to the south and S S E along the coast of Provence.

MARTIGUES.

From the Cape of Agde to Marseille the course is about 28 leagues east. On the N W side of the Bay of Marseille, about $5\frac{1}{2}$ leagues distant from the city, lies the Haven of Martigues, capable of large ships. At the entrance of this port stands the Tower and Fort of Bouc. Coming from the open sea, or from the S E, within the Haven to enter the Port of Martigues, it is proper to steer along close by the main land, because of some banks at the end of the Isles Piquets, which stretch above a great league into the sea.

These isles are very low, and on one of them is a white tower, which looks like a ship under sail.

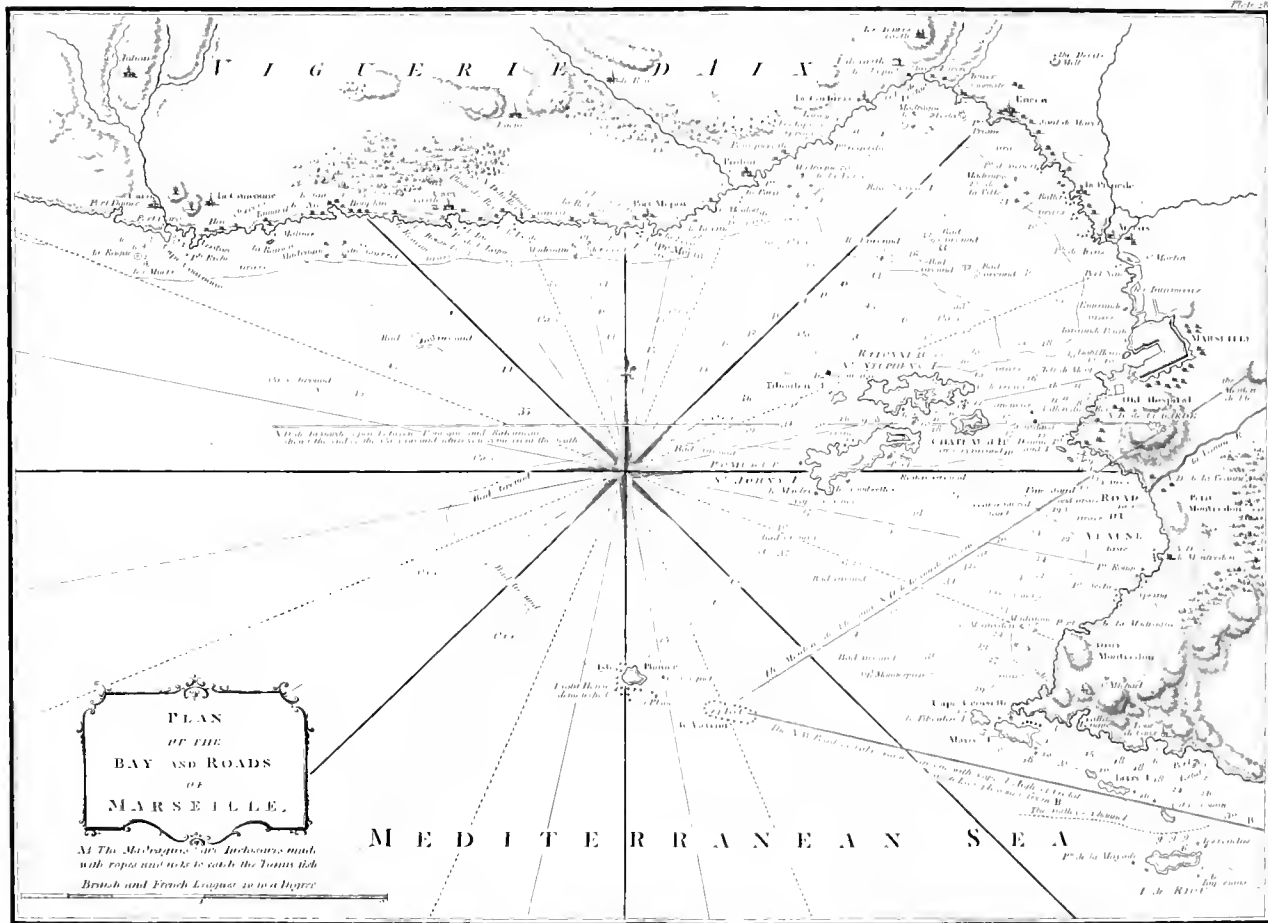
M A R S E I L L E.

From Cape de la Couronne to Marseille the coast runs about 6 leagues E S E, the lands between them all burnt and grey. The Cape de la Couronne is low, and rises with a gentle ascent to Marseille, near which nothing is to be seen but high mountains. The city of Marseille affords no prospect from the sea; nothing appears but two citadels at the entrance of the port, one situated at the north, and the other at the south, on a little hill. The Bay of Marseille is very extensive, and contains three isles of a good bigness, at the middlemost of which ships anchor; but the ordinary place of anchorage is between the two biggest, called St. John's and Ratonneau, which have each a small fortress. The third, which lies between those isles and the continent, is the most considerable, because it has a good castle upon it, called Chateau d'If. There is very good passage between all those isles; but between Chateau d'If and the shore of Marseille lies a rock directly in the middle of the channel. When you repair to Marseille by this passage, you are to steer hard by Chateau d'If, till you are past the said rock, after which you fall in with the city, and go and cast anchor at the entrance of the port; for the Port of Marseille is never entered with flying sails. There are also two small isles opposite to Chateau d'If, and very near the land, before which you may anchor in 8 or 10 fathoms water. You may also anchor between them and the land, by mooring to the said isles, and having also an anchor on the side towards Notre Dame de la Garde. From Marseille to Cape Croisette, which is the southernmost cape of the entrance of the Bay of Marseille, is 2 leagues; between them is the Road du Veaune. Above 2 leagues eastward of this Cape is a little flat isle, encompassed quite round with banks of rocks, on which is erected a tower, seen at a great distance, before the said isle, which is level with the water. The isle is called Planier. There is anchorage almost every where within the Bay of Marseille.

L A C I O T A T.

From Cape Croisette to La Ciotat the course is to the east about 4 leagues,





the shore all high, and burnt cliffs. Three leagues from this Cape, and 2 leagues northward of Cape de l'Aigle, or Cape of La Ciotat, is the little town of Cassis, which has also a small haven. The town of La Ciotat is seated in the bottom of a bay, at the entrance of which, eastward of the Cape, lies a small island, called Isle Verte. Within the bay is the anchorage of La Ciotat in 8 or 10 fathoms water. On the eastern side of the isle lies a bank, on which there are not above 9 or 10 feet; for this reason, when you enter by that side, you must leave two-thirds of the water towards the isle; but afterwards, when you are got within, you come near the isle, and cast anchor in 8 or 9 fathoms; sand and mud: the western side is the finest channel, but it is good, however, to steer nigher the continent than the isle, because it is deeper. There is a mole at La Ciotat, where ships lie under cover, when they are unloaded, but cannot reach thither with their cargoes, for want of water.

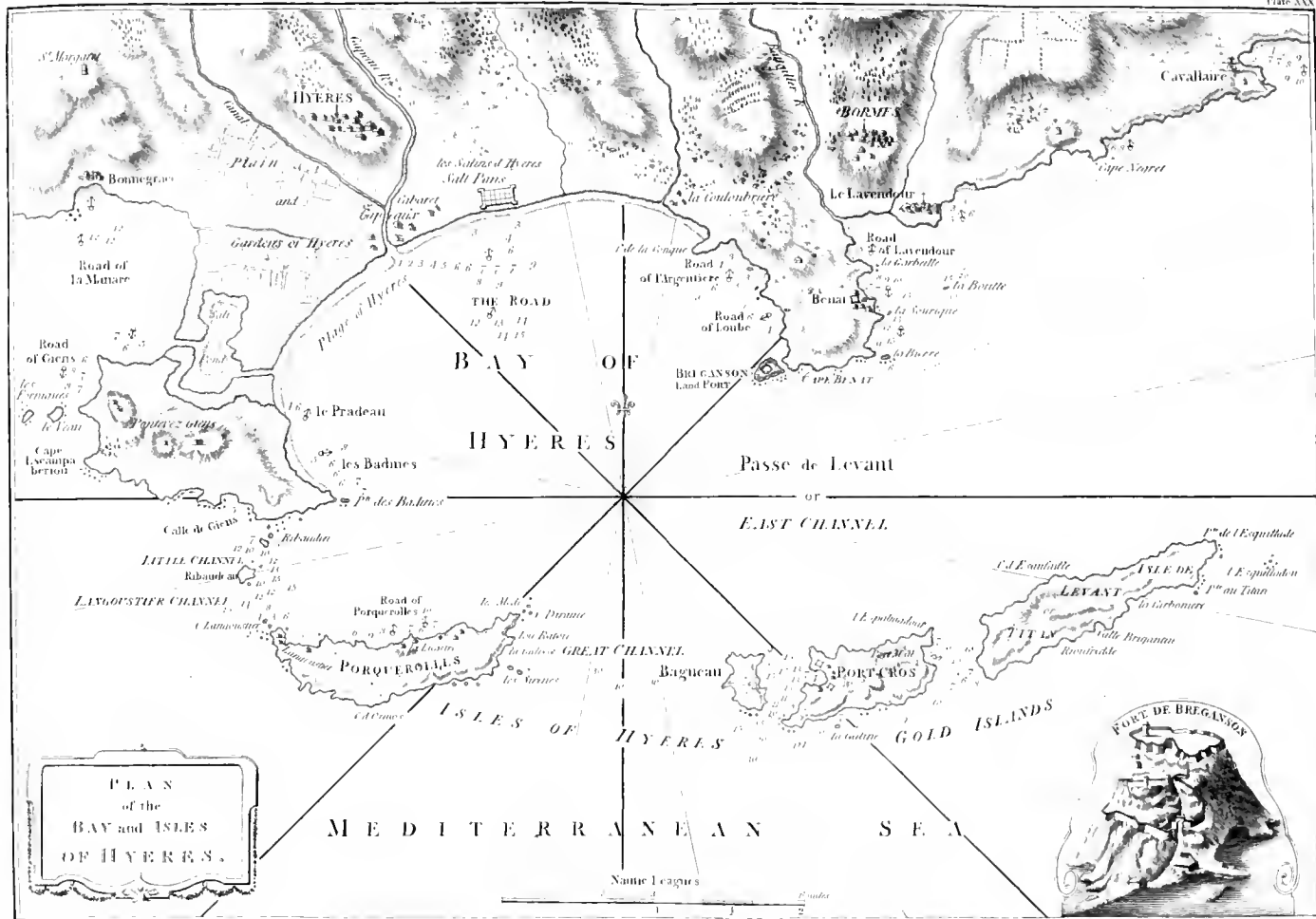
TOULON.

From the Cape de l'Aigle to Cape Sicié the course is $4\frac{1}{2}$ leagues S E; and between these two capes are the roads of Bandol and Brusc, where ships may anchor pretty safe. From Cape Sicié to Cape Cépet the course is 2 leagues N E by E. In these two courses it is all low land along the shore, with many windings; but farther inland you see nothing but dry and parched mountains, except where their tops are covered with woods. There are numbers of rocks, above and below water, along this coast, for which reason it is proper to steer a little wide of it, and never approach it too near. Cape Sicié is very high and steep, and has two small islets, or rocks, called the Two Brothers. At the foot of this Cape, on the eastern side, lies a great sandy cove, called St. Elme's Road, very low. As you pass before this place, you have a prospect of the city of Toulon, and of the ships in the road, and many take it for the entrance of Toulon, which, however, is a league to the east of this cove. The Bay of Toulon is $1\frac{1}{2}$ league broad, and about 2 in depth. On the N W side it winds in a cove, whence it is entirely shut up, for the points cover each other; and when you are before the city of Toulon, you can see nothing of the sea, but what appears above St.

Elme's Road, which is near Cape Cépet, as abovementioned. The Bay of Toulon is clean throughout, except at the point of the Great Tower, where there is a small bank that projects a little into the sea. There is anchorage every where in this bay; but the common place of anchoring is between the Great Tower and the city, which is called the Little Road; there ships ride in 6 or 7 fathoms water, on a bottom of mud, and under cover from all winds.

ISLES D'HYERES.

From the Bay of Toulon to the Isles of Hyeres the course is above $3\frac{1}{2}$ leagues S E. These isles are six in number, every one of a good height. The chief, which is the nearest to Toulon, is called Isle Ribaudin, and has a small castle on it. There is no passage between this island and the continent; and the land, on which are several salt pits, is very low. Between this isle and the second isle, called Ribaudas, there is a passage for barks; but between this same isle and the Isle Porquerolles, lying to the east of it; this channel, which is named the Petite Pass, has from 8 to 10 fathoms. Near Porquerolles are some rocks that extend a little to the N W; wherefore it is advisable to steer highest to Ribaudas, or else to keep the mid-channel. Porquerolles has a castle well garrisoned, with good anchorage under it, as you find it every where after entering the Bay of Hyeres, where you make towards the town of that name, in 10 or 12 fathoms water: the town of Hyeres lies northward of Isle Porquerolles. About 3 leagues eastward of this town lies Isle Berganson, which must not be approached too near, because of some rocks under water, which lie a great $\frac{1}{4}$ of a league wide of it. There is a fort on this isle, which bears its name, and has very good anchorage under it, on its western side. Above $1\frac{1}{2}$ league east of Porquerolles are situated also three islands, the first and smallest of which is called Bagneux. Between this and Porquerolles is the Grand Passe, or Channel, into the Bay of Hyeres. The second island, separated by a small channel, $\frac{1}{4}$ of a league wide, in which are 15 fathoms water, is called Port Cros. Between this and Cape de Benat, on the continent, is the eastern Channel, or Passe de Levant, which is about $1\frac{1}{2}$ league wide; the best and easternmost island of the Hyeres is called Isle de Levant, or Du Titan, and is about $\frac{1}{2}$ a league distant from



Port Cros. To the eastward of the Isle de Levant lie several rocks under water, running off about 1 mile, and which must be avoided. From the N eastern side of the Point of Isle de Levant to Cape Taillar, the course is 3 leagues N N E, but a little more easterly than the course, lies a rock under water, which is very dangerous. Wherefore when you come from the east, and intend to anchor at Hyeres, you are to steer nigher to Cape Taillar than to the Isle de Levant, till you are got to the west of the Capes; after which you sail at large as you please, in 40 or 50 fathoms water, till you come within Breganson Fort. Between Cape Taillar and Cape Benat stands a big rock above water; and under Cape Taillar lie a number of islots and rocks: northward of the same cape there is good anchorage in 15 or 16 fathoms.

S A I N T T R O P E Z.

From Cape Taillar to Point St. Tropez the coast runs above $2\frac{1}{2}$ leagues towards the north. There are many rocks along this coast, and mostly under water. There are also two huge rocks above water, and remote from all the rest. St. Tropez is situated on the southern side of the Gulf or Bay of Grimaud, in which bay there is very good anchorage in 6 or 8 fathoms.

G U L F O F F R É J U S.

From Point St. Tropez to the western point of the entrance into the Gulf of Fréjus, the coast runs 1 league N N E, the land between it very high. At the western point of the entrance of this Gulf lies a rocky bank, reaching from the eastern side, and extending a great way within: and between the extreme of this bank and the eastern shore, lie two small islands, between which you pass to go to Fréjus. You anchor in the Gulf of Fréjus in 15 or 10 fathoms water, according to your distance from shore; and there you are sheltered from all winds, except those of the south.

C A P E R O U X.

From Cape Fréjus to Cape Roux the coast runs above 2 leagues to the northward; the land between is very high. Cape Roux is very lofty, steep, and dry, appearing wholly covered with great red and broken rocks.

ROAD OF GOURJAN, or GOURGEN.

From Cape Roux to the Isles of St. Margaret and St. Honorat the coast runs about 2 leagues N E $\frac{1}{4}$ N. The land being every where mountainous, and dry: these isles are very flat and level; Isle of St. Honorat is the smallest, and farthest from the continent; they are inhabited, and St. Margaret has a good citadel. They are very clean, except St. Honorat, which has a rocky spit that runs a good way into the sea on the southern side, and requires a tack of above $\frac{1}{2}$ a league; you may sail all round them to go within the Gulf de la Napoule, or to anchor under the fortress, which is on the north side; the ground is good every where.

From this Isle of St. Margaret to the Cape de la Garoupe the distance is $1\frac{3}{4}$ league: the gulf between is called Le Gourgen, in which there is very good anchorage every where. Cape la Garoupe is of a moderate height, and has a chapel on the top, called Notre Dame de la Garde, or Notre Dame d'Antibe. From this point runs out a rock under water, which runs into the sea a cable's length, or more, and requires caution. Half way between the said isle and cape, in the fair-way, lies another rock under water. All these roads afford anchorage in 6, 7, or 9 fathoms water.

Sailing Directions for GOURJAN ROAD, by the late Captain JOHN CLARK, of the Royal Navy.

“ From the Point of St. Margaret's Island to the Point of Cape de la Garoupe, it is about 4 miles E by N, and between these two points there is a large bay, which is called the Road of Gourjan, where several ships and gallies may ride. This road is easily known, viz, by the islands of St. Margaret, when you come from the westward; and by Cape de la Garoupe (upon which stands Our Lady of Antibes) when you come from the eastward.

“ It is necessary to observe, when you come from the westward, to anchor in Gourjan Road, that you should not range too near the eastern point of Isle St. Margaret, because of some rocks that lie near it. Almost in the middle of the Road there is a rock above water, like a great boat, called the Boute of Gourjan; and south and north from this rock, there are two rocks,

almost level with the water, each distant from it about 80 fathoms, and upon which the sea breaks sometimes: these dangers excepted, you may range pretty near the Boute, there being 5 or 6 fathoms water to the westward of this rock; so that you may pass as near as you can in mid-channel between the Island of St. Margaret and the Boute, though there is a great space between, and 10, 12, and 15 fathoms water.

“ You may likewise pass between the Boute and Cape Garoupe, the space there being greater, but you must not go too near the first point of the Cape, as at a cable’s length from it there are some rocks under water: almost half way between the Boute and the Cape, there is a shelf of sand with 5 fathoms upon it. Great ships must pass by the Island of St. Margaret, or else near to the Boute.

“ After you are past the Boute, you go and anchor in the bottom of the Bay, over a great square tower, called the Tower of Gabelles, standing on the sea side, where you will be within a small cannon-shot of the shore, in 5 or 6 fathoms; the ground sand and mud. Ships likewise anchor against this tower, but a little farther out, and within the Boute, in 15 or 18 fathoms water. The winds that incommode you most in this road are the south, and S E winds; when the wind is at N W, you may anchor over against a large point to the westward of the tower, which is called Cane * Point, and there carry moorings ashore; you are there in 5 or 6 fathoms water.”

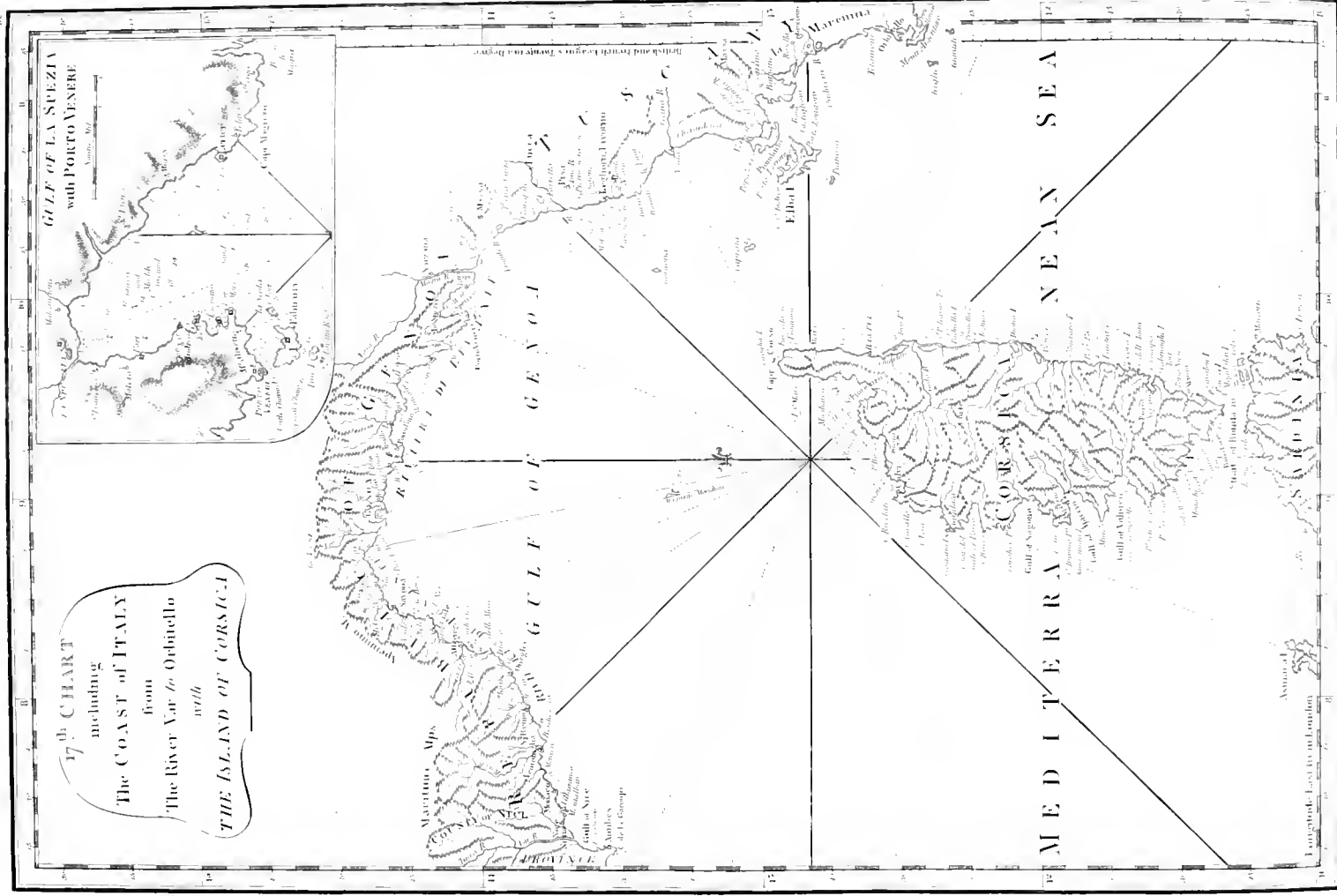
ANTIBES.

The town of Antibes is situated about $\frac{1}{2}$ a league to the north of Cape de la Garoupe, and has a port with 13 or 14 feet water. Without this port lies a small bank of rocks, with only 10 feet upon it. It almost bars the harbour, and a vessel cannot pass between it and the western shore; but must stand off to the east, and steer nigher to the eastern side of the shore than to that on the west.

* Probably the same with Point la Foucade.

COURSES AND DISTANCES.

- From Cape de Creux to Lansan Bay, N W 3 leagues.
 From Lansan to Port Vendre, north 2 leagues.
 From Port Vendre to the entrance of Narbonne, northward 11 leagues.
 From the entrance of Narbonne to Cette, E N E 12 leagues.
 From the Cape of Agde to Cette, E N E above 3 leagues.
 From the Cape of Agde to Marseille, east 28 leagues.
 From Marseille to Cape Croisette, south 2 leagues.
 From Cape Croisette to La Ciotat, east 4 leagues.
 From Cape de l'Aigle to Cape Sicié, S E $4\frac{1}{2}$ leagues.
 From Cape Sicié to Cape Cépet, N E by E 2 leagues.
 From the Bay of Toulon to the Isles of Hyeres, S E $3\frac{1}{2}$ leagues.
 From Cape Tailliar to the Point of St. Tropez, north $2\frac{1}{2}$ leagues.
 From the Point of St. Tropez to the Gulf of Fréjus, N N E 1 league.
 From Cape Fréjus to Cape de Roux, north 2 leagues.
 From Cape Roux to the Isles of St. Margaret, N E $\frac{1}{4}$ N 2 leagues.
 From the Isle of St. Margaret to Cape de la Garoupe, $1\frac{3}{4}$ league.
 From Cape de la Garoupe to Antibes, north $\frac{1}{2}$ a league.



CHAP. VI.

*Directions for Sailing into several Ports of the COAST of ITALY,
from ANTIBES to PORTO FERRARO ; by Captain JOHN CLARK,
of the Royal Navy.*

VILLA FRANCA.

BETWEEN Antibes and Villa Franca, which belongs to the King of Sardinia, or rather between Cape la Garoupe and Punta de Mala Lingua to the southward of Villa Franca, is the Gulf of Nizza or Nice. The course across this Gulf from Cape la Garoupe to Point Mala Lingua, lies N E $\frac{3}{4}$ N near 4 leagues, and from Antibes to the same point N E $\frac{1}{2}$ N nearly, about 3 leagues.

In the Bay of Villa Franca you lie almost land-locked, and from the S W to the south no winds can hurt you. Having both points open, the course in is N N E near 3 miles to the castle : there are two small towers, one on each side of the harbour, a good way in ; they are the marks for the anchoring ground, for you will have none till you come within them ; there is 30 fathoms just off them, and gradual soundings up to the town. The way of mooring here is just off the town, with a good scope of cable to the southward, and one cable on shore to marble pillars erected for that purpose. But when I was here in the *Namur* (Admiral Matthews) we anchored off the Mole's Head, and moored thwart the harbour, a cable each way. There is a small Mole on the west side of this harbour, where there is 16 feet water. I saw the *Romney*, the *Feversham*, and several of our small ships heave down, in the year 1743, in this Mole.

Cape delle Melle, which may be considered as forming the S W extreme of the innermost Gulf of Genoa, is near 12 leagues to the N E $\frac{1}{2}$ E of Point Mala Lingua ; and from the above Cape, across the innermost Gulf, to Porto Venere, which lies on the S E extreme, the course is due east nearly

about 20 leagues. Porto Venere is about 1 league to the westward of the Gulf or Bay of La Spezia, one of the best in the Mediterranean, and belonging to the Genoese.

GENOA.

The sailing into the harbour of Genoa, between the two Moles, is very safe, and without any difficulty: in coming from the westward you must give a pretty good birth to the point on which the light-house stands, on account of some rocks under water. You may moor within, behind the Moles, with a cable or two on the Mole, or anchor thwart the harbour, a cable each way. The winds to which you are exposed in this harbour, are the S W wind, that brings in a very great swell, and the N wind, which, though a land wind, has sometimes driven ships from their anchors.

GULF OF LA SPEZZIA,* and PORTO VENERE.

In sailing into this Gulf there is on your larboard side three islands, the southernmost of which lie so close together that you can see but two: the outermost is very small; you must give it a good birth, and come no nearer it than 15 or 14 fathoms water. There are very good soundings all over this harbour or gulf; abreast of the first isle you will have 12 fathoms, and gradual soundings all the way up, till you come as high as St. Andrew's Castle; then it begins to shoal pretty fast; it is all over a loose clay ground. Just off the inner end of the great island there is a rock, or as the Italians call it, the Scoglio, on which stands a square castle, or tower; you have 7 fathoms close to it, and 5 fathoms between it and the great island, but the channel is very narrow.

* The celebrated La Condamine speaks thus of this Gulf, in his *Journal of a Tour to Italy*, p. 25 and 26: "In passing from Genoa to Lerici on board a felucca, I entered the Gulf of Spezia, where I saw a spring of fresh water in the midst of the sea. This Gulf, on the borders of which are seen the ruins of the ancient city of Luna, destroyed by the Saracens, forms the most beautiful and largest port of the Mediterranean, and perhaps of the whole world. It comprehends within its sweep, and in its bays, several other ports: two naval armaments may lie there at anchor, without seeing each other.

A. *Log*

B. *Um*

C. *Pha*

D. *Ne*

E. *The*

F. *Gad*

G. —

H. *Im*

L. *St*

K. *St*

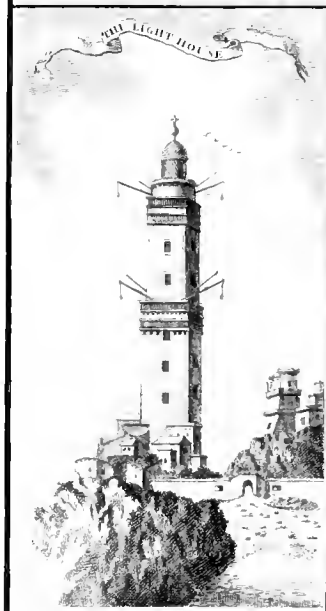
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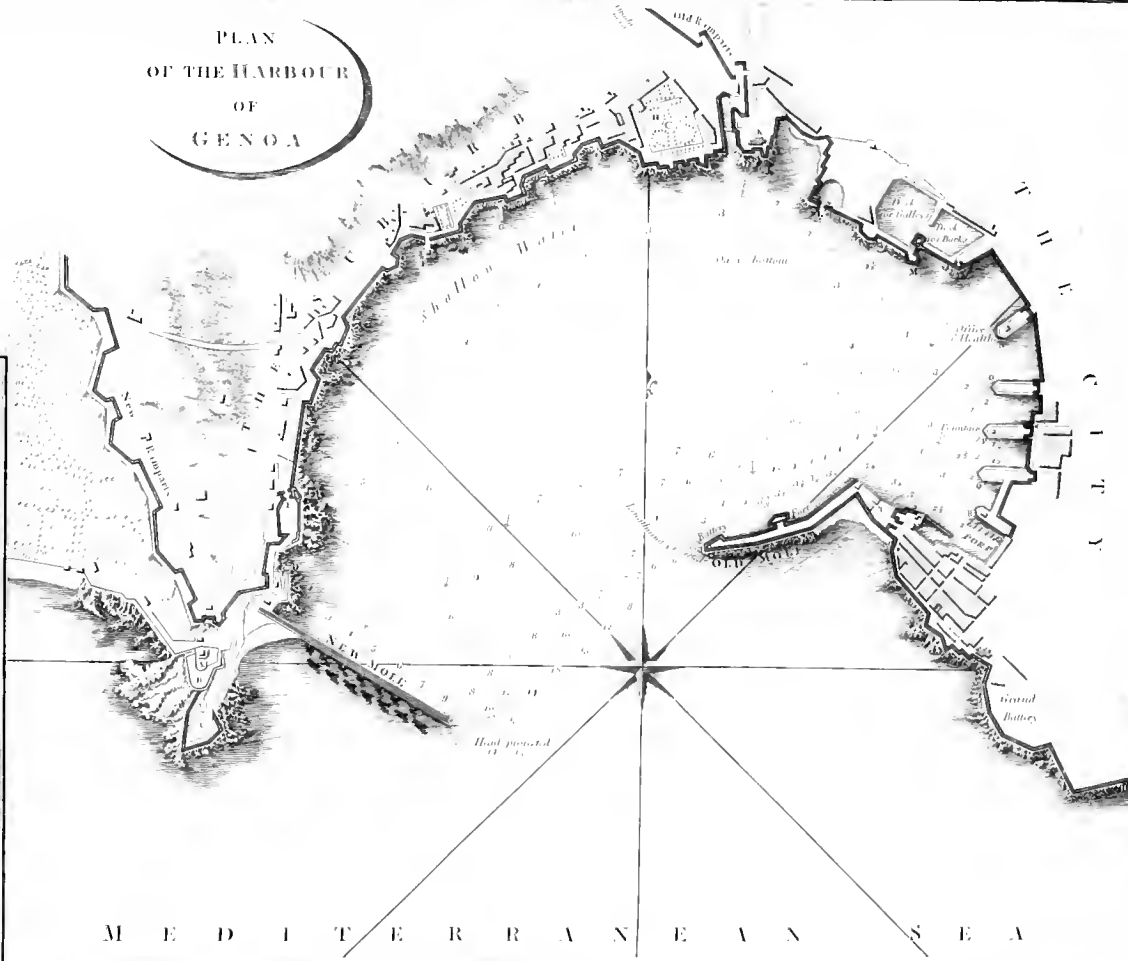
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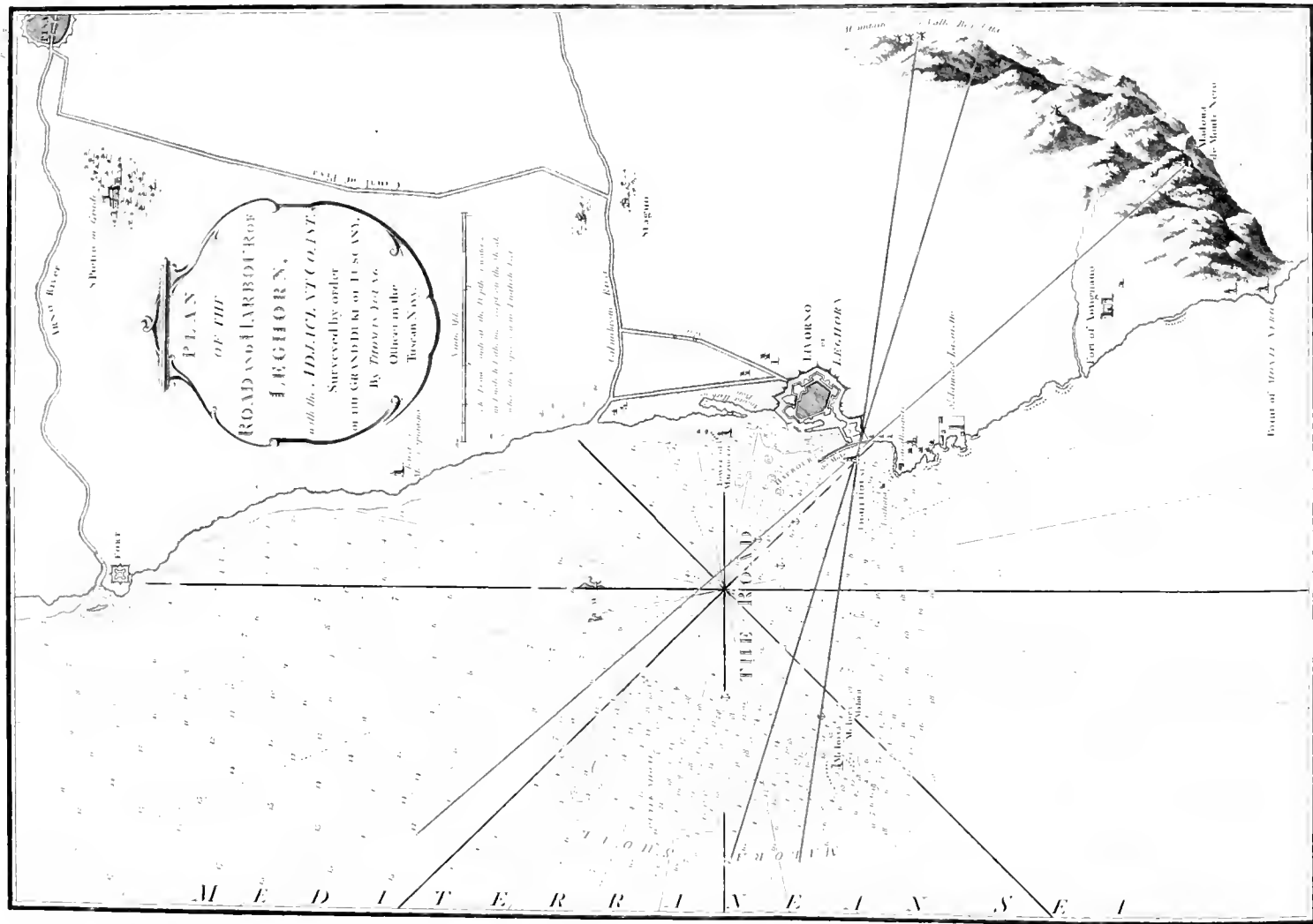
- A Light house and Platform I Gate of the Dock East
 B Under platform made in 1888 M — on the Dock
 C Platform on the rock 1682 N Lyons boat
 D New Barracks for Landing O Spanish boat
 E The New boat and Butters P Royal boat
 F Gate of S^t Paul's Q Merchant boat
 G — of S^t Andrew's R Catholic boat
 H Prince Thomas Palace S Mandarin boat
 I S^t Thomas boat T Old Mob boat
 K S^t Thomas Church

English Lithom.



PLAN OF THE HARBOUR OF GENOA





Between the great island and the main there is a large cove or harbour, called Porto Venere, where you may anchor in 6 or 7 fathoms water, and lie safe from all winds: you must take care you do not run too far in, for there is a bank of sand stretching from the main to the island, with only 6 feet water on it, which makes a good harbour for all westerly winds. Between the great and the second island there is a very good but narrow channel, where you find 18 or 20 fathoms.

There are three large coves, on the west side, above Porto Venere; you may lie land-locked from all winds in each of them, and have no less than 5 fathoms. The best of these coves is that between St. Mary's, Castle and St. Andrew's; but we lay with all our fleet most of the winter above St. Andrew's, in 5 fathoms.

The course into this port is N $\frac{1}{2}$ W, and the distance from the outermost island to the town of Spezzia, 7 miles.

From Porto Venere to Gorgona Island, the course is S by E $\frac{1}{2}$ E about 14 leagues; to Porto Ferraro, in the Isle of Elba, S S E nearly 30 leagues; to Cape delle Melle W 6° N 20 leagues; and to the Road of Leghorn, S E $\frac{1}{2}$ E 13 or 14 leagues.

LIVORNO, or LEGHORN.

Directions for Sailing into LEGHORN ROAD.

Leghorn is one of the first commercial ports in Italy, and belongs to the Grand Duke of Tuscany.

From Gorgona Island to the Malora* the course is E N E $\frac{1}{4}$ E, or N E by E, distance about 7 leagues; and from the Gorgona to the Light-house, or Lanthorn, E N E $\frac{1}{2}$ E $7\frac{1}{2}$ leagues. If you are bound to this port by night, bring the Lanthorn to bear east, or E by N, and borrow on the main, then you may be sure of being clear of the Malora. All over this Road there are very great overfalls towards the Malora; as you are a turning out, about

* An islot that lies above 2 leagues to the west of the harbour, and on the southernmost end of the outer shoal, forming the Road of Leghorn.

$1\frac{1}{2}$ mile distant from it, you will not have above 4 fathoms. It is best with a ship of great draught of water turning in, or out, to take towards the main a good birth, when you come in as far almost as the Mole's Head, it being flat off a good way.

The best of the Road is to bring the Tower of the Powder-house, and another square Tower in one; or the square Tower a little open either way, the Lanthorn on the south part of Mount Negro (Monte Nero); then the Malora will be just open to the eastward of the Gorgona; but the Lanthorn S E, and the Malora W by S, is a good birth in $6\frac{1}{2}$ or 7 fathoms. You moor here with the best bower to the W N W, and small bower to the E S E.

There is another channel to the northward of the Malora for small ships; the mark for it is the Lanthorn in one with the Madona Church, which stands on the south side of Mount Negro. If it should be close weather, and you cannot see the church, there is a hummock on the east side of the church, which is to be seen at most times, keep that hummock a little to the eastward, and it is a good mark. I am informed, by the pilot of this port, that there is no less than $5\frac{1}{2}$ and 5 fathoms water in this channel.

The variation in this road, in 1782, was about one point and a half westerly.

ISLE OF ELBA, or ILVA, and PORTO FERRARO.

This island, which belongs to the Grand Duke of Tuscany, is separated from Italy by a channel, which is only 2 or 3 miles in width, between the northernmost point of the island, and the town of Piombino on the opposite main land. It is about 50 or 55 miles in circumference, being much longer than broad, and very high almost on all sides; its shores are much indented, and form many bays and harbours, among which the best are Porto Longone and Porto Ferraro; the first is on the easternmost side, and the other, which deserves a particular description, on the north side, about $4\frac{1}{2}$ miles S W by W from the N easternmost point of the island.

It is a large bay, about 3 miles deep, and as many in breadth within. On

the western, or starboard side, as you go in, lies the well fortified town of Ferraro, standing on a high point, which is almost steep on all sides. This point is a peninsula, upon the two ends of which are two considerable forts in a very advantageous situation. About 500 fathoms to the westward of the town there is a small round island, between which and the land you may pass in mid-channel without any danger ; off the westward of the island, about half a cable's length, there are some rocks under water.

To anchor in Porto Ferraro, you must not come within two cables length of the point of the town ; after standing about the point, you anchor opposite to a tower which is at the entrance of the Mole, where you have 6 or 7 fathoms water, according to the place you have chosen, in very good oozy ground ; some ships anchor farther out, to be more in readiness to get under sail. You must not stand too far into the bay, though it is very wide, but you are to keep 3 or 4 cables length from the above mentioned tower. You water on the other side of the bay, near to a point of rocks which are seen on the sea side. The N W and S W winds are the only winds troublesome here ; but can cause no great sea, as they come over the land. About N W by W, a good mile from the point of Porto Ferraro town, there is a large point, near to which are two shoals stretching about two cables length, and where the sea breaks sometimes.

CHAP. VII.

ISLAND OF CORSICA.

Directions for Sailing along the COASTS of CORSICA, and into its PRINCIPAL BAYS and HARBOURS, from Mons. BELLIN, Hydrographer to the French Navy.

I. *Directions for the EASTERN COAST, from CAPE CORSO to the STRAITS of BONIFACIO.*

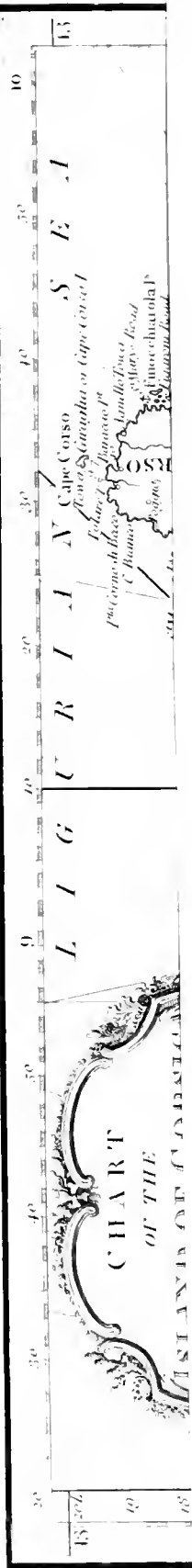
CAPE CORSO.

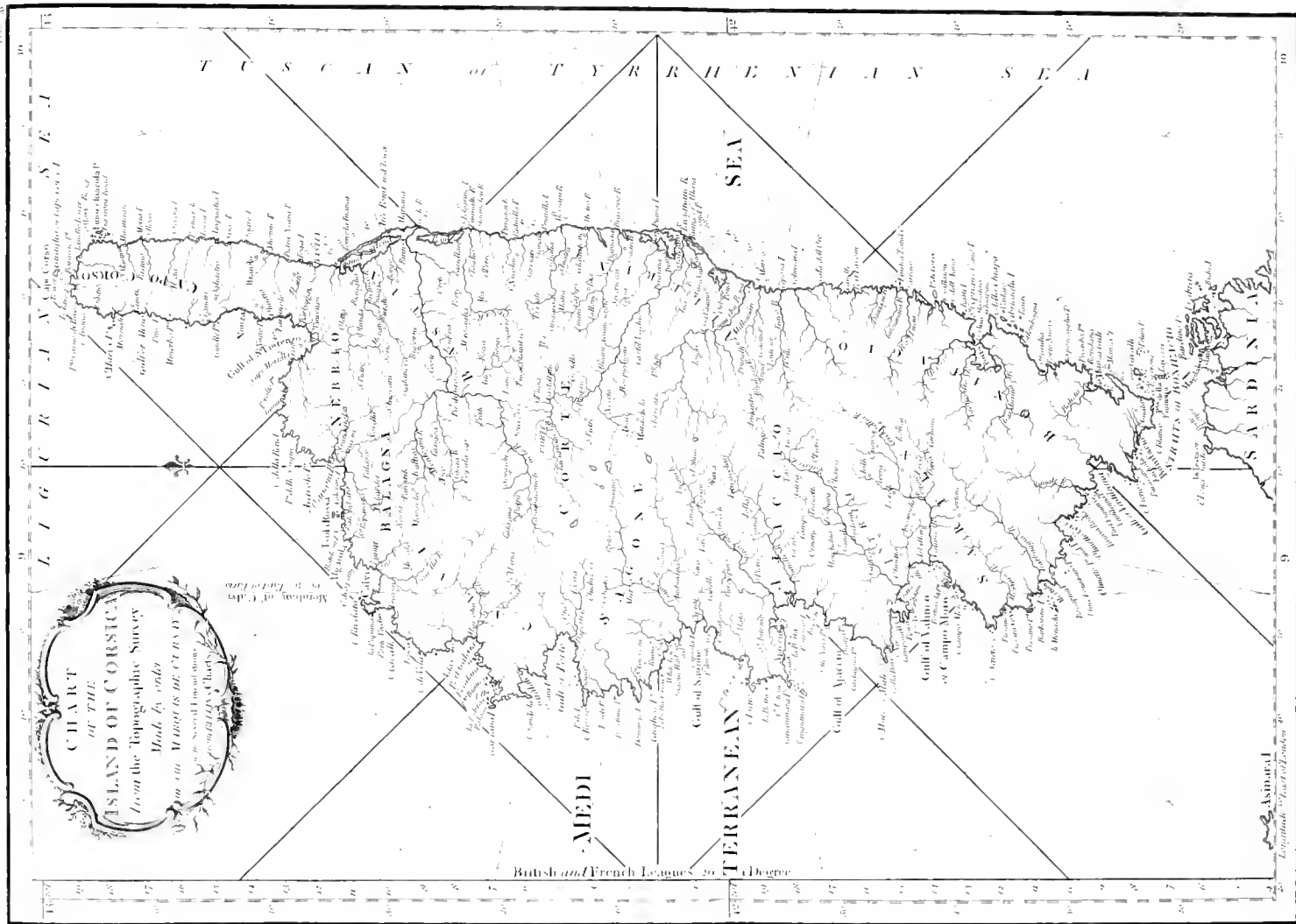
THE north point of Giraglia, a small island near the northernmost land of Corsica, may be considered as the true Cape Corso ; though this name, which is given to a part of the north peninsula of the island, in a length of 12 miles, is also particularly applied to its northern extremity. Giraglia is divided from the main by a channel above one mile broad, with a depth of 7, 8, and 9 fathoms water ; ships of all sizes may go through this channel, as there is no danger ; but they must attempt it only in fair weather, and with a leading wind.

FINOCCHIAROLA ISLANDS.

About 5 miles to the S eastward of Cape Corso are the three islots or rocks of Finocchiarola, named also Figaroni Islands. To the southward, and very near these islands, is Figaroni Road, where you anchor in 7 and 8 fathoms, and are sheltered from the north, N W, and west winds. Between the two outermost islands, the channel, although very narrow, is very safe, having 6 fathoms water ; you find likewise a channel between the two others, with as much depth, but there you meet with some rocks near the latter island, and between this island and the main there is only 7 feet water.

At the distance of one mile W N W from those islands there is another anchorage, which they name St. Mary's Road, in which you have 6 or 7 fathoms, $\frac{1}{3}$ of a mile from the shore ; small craft may come nearer in 5 and 4





fathoms, but care must be taken of the shoals which are along this shore, and near which there are 9 feet water: the watering place is at a well not far from the shore.

BASTIA.

From Finocchiarola Islands to Bastia the course is due south for 13 miles, and then 6 or 7 miles S S W, the coast which extends in both these directions is very high, and the mountains generally come almost close to the sea. Bastia, the capital of Corsica, has a small harbour, fit only for gallies and tartans; the entrance, which is about 90 yards wide, is very difficult, and you lie there exposed to very dangerous puffs of land winds, chiefly from the N W their violence is such that they sometimes break the barks to pieces against the Mole, or against each other. This entrance lies between the head of the Mole and the Lion, a huge rock to the southward of it, and on the larboard side in coming in, with the east, E N E, and E S E winds, which are the most troublesome. It is only practicable for one vessel at once; they must take care to keep exactly the mid-channel, and as soon as they have anchored, a cable is immediately carried on shore to one of the stone pillars erected for that purpose on the said Mole; they lie then in 3 or 4 fathoms water, on a ground of white glass and ooze.

The best birth is on the side of the Mole where the gallies anchor; it may hold 5 or 6 of them, and 8 tartans. At the end of the Mole there is a watch-house, where a fire is lighted to direct the ships during the night, in bad weather.

In the middle of the left side of the harbour, ten barks or tartans may anchor in 3 fathoms, same ground as above; but on that side you are exposed to the winds from the offing, viz. the east, E N E, and E S E, which blow straight into the harbour. The vessels which are lying along the Mole are sheltered from them, and suffer only from the great surge that comes in, though there is nothing to fear if the cables are good.

If the winds should not permit to enter the harbour of Bastia, you may anchor without the Mole, in 10 and 11 fathoms, having the northern part of the town and the Mole to the west, a cable's length. To the northward of this place, and at the end of the suburb, there is a brook where the watering is very commodious, and the water very good.

The COAST from BASTIA to PORTO VECCHIO.

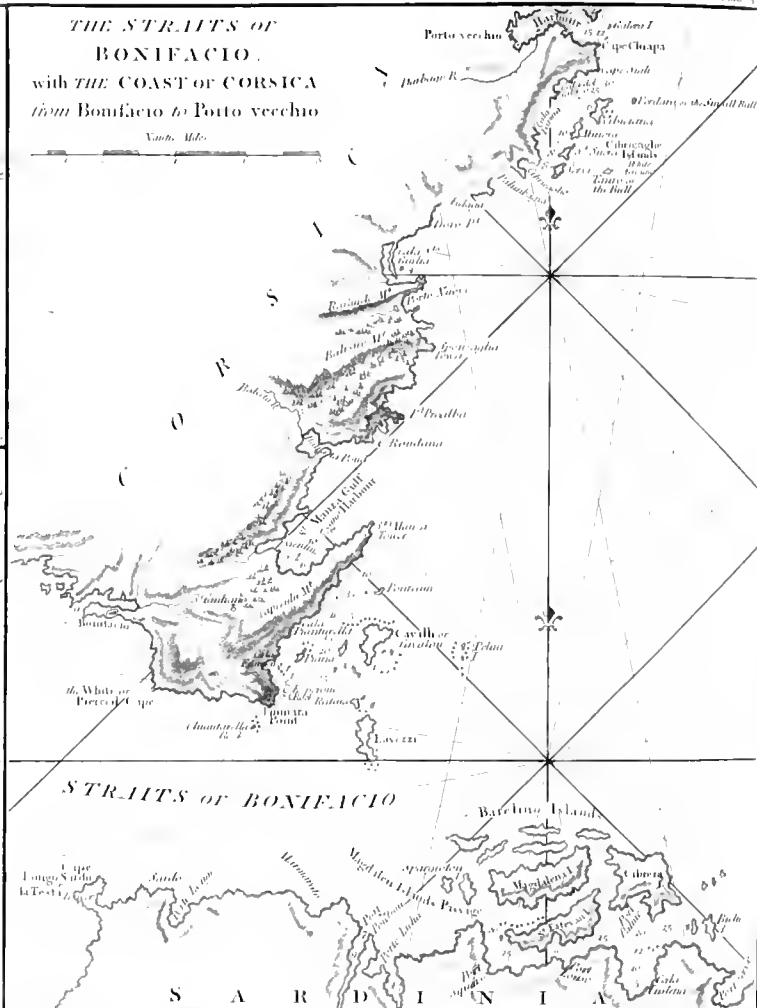
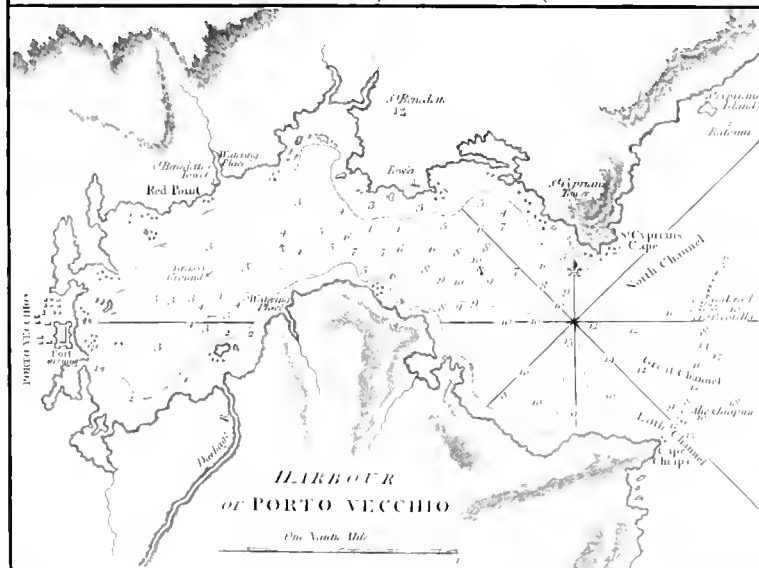
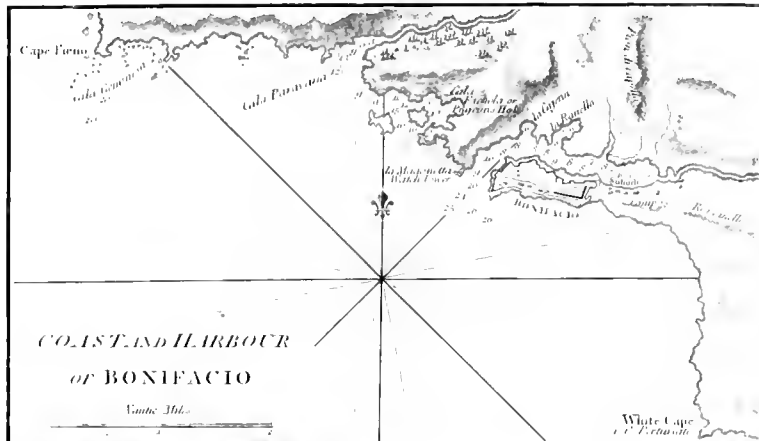
From Bastia to the Point of Arco the coast stretches 2 miles due south, as far as the mouth of the great pond of Biguglia, and then 6 miles S E by S. It is all a low green land except the point, which rises a little above the rest. One or 2 miles in the offing, you have 40, 50, and 60 fathoms water.

From Arco Point to the mouth of river Tavignano, it is above $8\frac{1}{2}$ leagues, south; there are no villages in the whole tract, which is very low, and you see only towers on the shore, to the number of nine, and at various distances from each other. You will perceive also the mouths of several rivers, the principal of which are the Golo, 2 miles south of Arco Point, and the Bravone, 6 miles north of the Tavignano. Very near the shore, you find 15 fathoms abreast of the Golo; and a little more southerly 20, then 30 and 40 fathoms as far as Paduella Tower. From this tower to the Bravone, the coast is low and level, with a depth of 2, 3, and 4 fathoms water, and in some places a fine sandy beach.

At the mouth of the Tivignano, one of the chief rivers of the island, stands the Tower of Aleria, on a point which is not to be approached too near, on account of its shoals. There the coast makes a bend, and runs to the S W about 8 miles, as far as the Pond of Fiumorbio, being always low and sandy. When abreast of this pond, about 1 mile off, there is a dangerous shoal under water, called the Marise, with 15 fathoms near it.

From Fiumorbio to Solinsara, where the high land begins, the distance is 4 miles; and from thence to Cape Fautea, above 9 miles, in a southerly direction. Observe, that in the whole extent of coast between Point Arco and this Cape, there is not a single place where the smallest vessel can find shelter.

From Cape Fautea to St. Cyprian's Cape, the distance is 7 miles in a south and S S W direction. Cape Fautea is very high, and within it is a very good cove (Calanea), with a sand beach, which is able to contain six feluccas, brigantines, &c. the landing there is very easy. You meet afterwards with another beach at the bottom of a very small bay, whose name is *Piaggia di Sarraco*, and over against a small sunken rock, called *L'Areseana*,



and which you must avoid ; this rock is $\frac{1}{4}$ of a mile distant N $\frac{1}{4}$ E of Isola di Corsi, a small island, very high, and with a tower upon it. From the south point of Sarraco to Corsi Island the distance is $1\frac{1}{2}$ mile ; the coast between makes a cove, at the bottom of which is a sandy beach very level, with two brooks which come there into the sea. Small vessels and gallies may anchor in this cove, very near the land, and make a landing very easily ; but it is to be attempted only with the land winds, that is to say, the west, N W, and S W winds, and in the fair season : for all the other winds are to be feared, and ships could not remain there without great risk : there is room for 10 vessels.

From Corsi Island to Cape dell' Agua (water cape) the distance is near 2 miles ; between the two is a very high head land, called Cape Gilaïou, which, with Corsi Island, forms a cove, where barks, tartans, or gallies may anchor ; and whose bottom is a smooth sandy beach.

Two miles and a $\frac{1}{2}$ S W of Cape dell' Agua you perceive the Cape and Tower of St. Cyprian ; near the Cape on the north side, the coast makes a bay with a small road, in which 5 or 6 small vessels, like barks, pinks, tartans, &c. can find shelter. St. Cyprian's Island, which covers the anchorage, is there very near land, and no passage between ; the bottom of the cove has a sand beach on which landing can be made ; and above 500 yards eastward of the island there is a rock, or small islot, called the Ratti or Ratourni. Near the outermost point of Cape St. Cyprian, at a cable and a half's length, there is a rock under water, in part uncovered, of which you must take heed, and not attempt to pass between it and the land, as sunken rocks are lying between both.

·P O R T O V E C C H I O.

Cape St. Cyprian, on the north side, and Cape de la Chiapa, on the south side, make the entrance of Porto Vecchio ; they lie N N W and S S E from each other, at the distance of above $\frac{3}{4}$ of a mile. The land on both sides consists of high mountains which come very near the sea edge ; there are some islots or rocks a little way in the offing, which form three channels to go into the harbour.

The largest of those islots, called La Pecorella, or La Galera, is situated

near the middle, and almost at an equal distance from both the capes; it is as big as a boat, and encompassed with rocks, some of which stretch into the sea above a cable and a half's length on the north and east sides, and are not to be approached when you pass between this islot and Cape St. Cyprian: this is called the North Channel; which is fit for all sorts of vessels, but you ought not to make use of it without being well acquainted.

About 200 yards N eastward from Cape Chiapa stands the Chiapino, a rock above water; you may pass between it and the cape, having first 15, then 13, and within it 12 fathoms water; this is what they call the Little Channel.

The Great Channel, which is the easiest of the three, lies between the Chiapino and the Galera; its depth is from 17 to 12, 14, and 15 fathoms.

Porto Vecchio is a narrow bay about $2\frac{1}{2}$ miles deep, within a rocky coast, and where all sorts of vessels may ride in safety from the outermost islots up to that which lies at the farthest end within. Ships anchor in the middle of the harbour in 5 and 6 fathoms water; grassy ground and ooze; and as the land winds are violent, you must ride with a spring upon your cable; the winds from the sea can do no hurt, and bring no swell, the waves being broke by the islots and rocks at the entrance. Gallies and small vessels come near a little island which lies by the coast on the larboard side in coming in, and anchoring there in 3 and 4 fathoms, they carry a cable on shore in the islot.

There are two watering places, both very easy, at two rivulets which run down the hills; one is on the larboard and the other on the starboard side of the anchorage.

This harbour, the best of the island, is also one of the finest in the Mediterranean; but the badness of its air, and the noxious quality of the waters are such, that Porto Vecchio is abandoned, and almost useless. At the bottom of the harbour are the remains of a fort, inhabited by a few wretched families, who are obliged to leave their abode every year, in the months of June, July, August, and September, and to retire farther inland.

We cannot forbear to subjoin, in this place, what the ingenious Mr. Boswell has said of this harbour in his *Account of Corsica*, p. 22.

“ Porto Vecchio is a spacious haven, capable of containing a very large

fleet. It has a great depth of water, and a good bottom, and being land-locked on every side, is well sheltered from storms; I may add, that a high and rocky mountain nature has placed like a stately column to point it out at a great distance. In short, Porto Vecchio may vie with the most distinguished harbours in Europe.

“The only objection to it is the badness of its air, occasioned by the marshy grounds which lie in its neighbourhood.” But this disadvantage may be remedied, as has been done at Leghorn. The country about Leghorn was formerly a vile morass, or rather quagmire, the noxious steams of which rendered the air unwholesome; but by the skill and pains of an Englishman, Sir Robert Dudley, son to Queen Elizabeth’s potent favourite, the Earl of Leicester, the soil was rendered habitable, the air much less unwholesome, and the port improved so as to become the best in Italy.”—(*Present State of Europe*, p. 411.)

The COAST from PORTO VECCHIO, between CAPE CHIAPA and CAPE ESPERONE.

The whole course between these two capes is about 20 miles in a S S W course. From Cape Chiapa, the coast runs S W about 5 miles to the Cala or Cove of Santa Giulia, at whose entrance you may ride in 10 fathoms water; there is within it a very small and low island, between which and the main you anchor in 4 or 5 fathoms. The bottom of the bay is a fine sandy beach, where you may very easily effect a landing.

A little to the southward of Cape Chiapa, along the coast at about 1 mile distance, are four small islands, lying N E and S W, they are named Cibricaglie Islands: gallies and tartans may pass between them and the shore, and anchor in 20, 10, and 8 fathoms water; the nearest to Cape Chiapa is the largest; they call it La Cibiciani; the second, La Minora; the third, Santa Suera; and the fourth, La Servi.* About 1 mile off the first island, lies a rock above water, called the Vedraro, or Verdara, and also the Small Bull.

Two miles $\frac{1}{2}$ S S W from this rock, lies the Tauro, or Bull, likewise

* In Julien’s Chart, the largest of these islands is called La Piana, and the others La Soumaria, La Pietregouza, and La Fourana.

above water, to the eastward of which at three cables length, there is a white ground with only 14 or 15 feet water on it : between this ground and the Bull you find in the channel 35 fathoms towards the rock, and 25 towards the shoal.

Behind Santa Giulia's Cove is that of Porto Nuovo, divided from the former by the Rafauclo, a mountain which comes quite to the sea ; 2 or 3 galleys may anchor here abreast of a sandy beach, that has a rivulet of good water.

Above 1 mile from Porto Nuovo is the Torre di la Sponzaglia (the tower of the espousals) ; 2 miles farther to the southward you meet with Point Precuba, a high land projecting into the sea, and very near it there is a huge cape, called Rondana, which makes a part of the mountain at its back ; this is the entrance of Santa Manza.

This gulf, beginning at Cape Rondana, is near 4 miles in depth, with about $1\frac{1}{2}$ in width at its entrance ; it becomes narrower as you go in, and at the end of it there falls a small rivulet, whose water is very good, and easily obtained. The anchorage is likewise very safe for all manner of ships ; in 15 and 10 fathoms water, towards the middle of the harbour ; but farther in small vessels anchor in 5 or 6 fathoms, on a good ground, entirely sheltered, though the east and N E winds sometimes bring in a great swell.

From the easternmost point of this bay to Cape Esperone, the distance is 5 miles S W by S, the land between is high and steep : near this cape you find a small island, called Piana, behind which is the Fiumara Cove ; feluccas only can pass between the island and the main, and must be careful of the rocks that lie near the island.

To the west of Esperone, and very near it, is the head land, called Punta della Fiumara, or Cape Chantarella, the southernmost point of Corsica ; it rises to a great height, and terminates the eastern coast : about 5 or 600 yards to the south of it lies the Chiamarella, a danger partly under water, and partly uncovered, which is to be avoided.

Off the coast between Fiumara Point and Santa Manza, are several small islands, rocks, and shoals, with very unequal depths, and though the least water found there is $3\frac{1}{2}$ fathoms, and very near it 5, 10, and 15, you must not attempt to pass between them and the coast ; but when you make for the

Straits of Bonifacio, you are to sail without all the islands, and come nearer the coast of Sardinia.

II. The STRAITS OF BONIFACIO.

These Straits divide Corsica from Sardinia, and are bounded on each side by the coast of both islands, as well as by several small islands towards the east; the largest of which on the Corsican side are the Isle of Cavalli, or Cavalon, and that of Lavezzi; these are encompassed with dangerous rocks and shoals. Two miles east of Cavalli lie the Pelini Islots, called also Li Perduji, with many rocks under water, of which great care is to be taken; and although the channel is good between those islots and Cavalli, prudence requires that you should sail at a good distance to the eastward of them.

All sorts of vessels can go through these Straits without fear, although the sea is sometimes very high there, with a prodigious roaring; its passage being made narrower, on the east side, by the isles and rocks adjacent to the main islands.

The breadth of the Straits, on the west side, between Bonifacio and Cape Longo Sardo, is about 5 miles; but between Cape Fieno and the latter cape, about $6\frac{1}{2}$: in going through you must come nearer the coast of Sardinia than that of Corsica. Longo Sardo, called also La Giesta, the head, is a huge high cape, with a tower upon it, which appears like an island. Ten miles east of this cape are the Magdalen Islands; and north of them those of Barelino, which with Lavezzi, that lies 3 miles to the N W, make the narrowest part of the Straits. You sail pretty near in the mid-channel, and rather nearer the Barelino Islands than Lavezzi, which has some rocks under water at the south part.

The Magdalen Islands form the eastern part of the Straits of Bonifacio, towards the south; but we shall not speak of them, as they belong to Sardinia.

The NORTH COAST of the STRAITS of BONIFACIO from POINT FIUMARA to CAPE FIENO.

From Point Fiumara the course is 3 miles west nearly to Cape Bianco, the white cape, which is more commonly called Cabo Pertuisato, or

pierced cape, the rock being pierced through; from this to the entrance of Bonifacio harbour there is near 3 miles N W.

This harbour is a long creek about 1 mile in length, and from 110 to 130 yards in breadth; it appears like a deep ditch cut in the rock; ships can only enter it in fair weather, and before the wind, as the entrance is very narrow: within that entrance, at the point of land on the starboard side, on which stands the fortress, there is a rock as big as a brigantine, which is easily known.

You have at the mouth of the harbour from 15 to 20 fathoms; each side of the coast is clear; and you may go as far as you please without fear: on the larboard hand, in coming in, there are two holes, or recesses, where galleys may anchor.

When you are come abreast of the suburb you anchor in 5, 6, and 7 fathoms water; or you moor across; there you lie perfectly sheltered from all winds.

The neighbouring sea produces a great quantity of coral, remarkable by the length and fineness of its branches, as well as by the brightness of its colour, which is of a deep red; towards the end of May a prodigious number of small barks resort there for that fishery.

From the entrance of Bonifacio to Cape Fieno, the course is W by N $\frac{1}{2}$ N $3\frac{1}{2}$ miles; the land is very high, and the mountains come almost close to the shore.

Half a mile N W of the west point of Bonifacio, there is a cove, called Cala Fachola, sheltered by an island of the same name; this cove is known also under the name of the Pigeon's Hole (*crota di colombi*); you have in it 12, 15, 9, and 10 fathoms water, near the land: at the bottom of the cove 5 fathoms; and just ashore $1\frac{1}{2}$. Gallies and ships may anchor there sheltered from all winds; but the entrance is narrow, and you must be well acquainted with this place to find it. West of Fachola Island there lies another, separated from it by a channel, in which you have 10 fathoms water.

At a very small distance to the northward there is another cove, a great deal larger, with 12, 9, 8, and 5 fathoms water, they call it Cala Paravane; a ship might anchor within, and find shelter from the N N E, east, and S E

winds; but those blowing from the west, S W, and south, are very dangerous there, the swell being very great, and the land high and steep. At the bottom is a small sandy beach, with a brook coming down the mountains.

From this place to Cape Fieno the coast is foul, lined with rocks above and under water: the cape has also several rocks and shoals which extend 2 or 3 cables length into the sea, and to which a good birth must be given.

III. *Directions for the Coast from CAPE FIENO to CAPE SENETOZO.*

From Cape Fieno to Point Ventilegna they reckon 4 miles, N N W, the coast between forming a great bight about 3 miles in depth, and 2 in width; it is called the Gulf of Ventilegna, and has at its bottom a fine sand beach, very convenient for landing. In this Gulf there are several islots and rocks on the starboard side in coming in; the sea is very high with the winds from the offing, and you should not be safe there when they are blowing from the west, S W, and even the south. At Point Ventilegna there are some rocks above water, at a cable's length, to which you must give a birth, when you double the point to enter Port Figuari.

This port is about 1 mile broad from the last mentioned point to Cape Figuari on the opposite side, and 1 mile in length, growing narrower as it runs up into the land: you meet with many islots and rocks along the coast, as far as Figuari tower, and many likewise on the starboard hand; but they are all very near shore, leaving a very clear passage in the middle, with 10 and 12 fathoms water; ships anchor more inward in 6 or 7; you find then 4 fathoms, and then a gradual decrease down to the bottom of the port, where several small islands are found, which extend to the mouth of the little river Canalle. The port lies N E and S W; it is very safe, and you easily avoid the rocks by keeping in the middle of the channel. It is surrounded with very high mountains close to the sea; and among these one is distinguished higher than the rest, called Figuari Mount, which may serve as a mark for this port.

One mile and $\frac{1}{2}$ N W of Figuari Point lie the Briccia Rocks, running off above $\frac{1}{3}$ of a mile into the sea; behind them is the small cove of the same

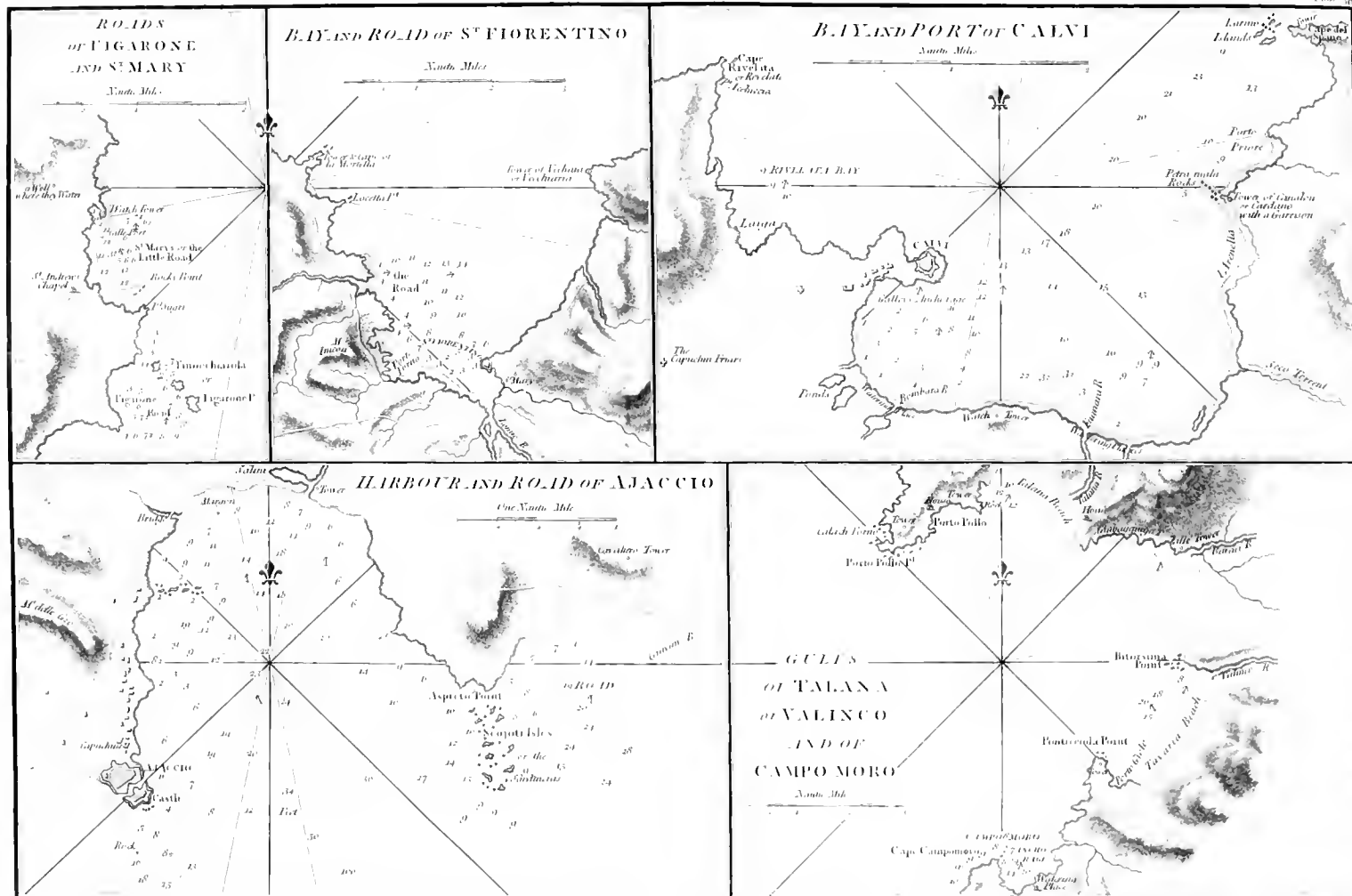
name, capable of receiving a few barks, but whose entrance is very difficult. N W of these rocks you come to Olmetto Cove, which must not be entered without being acquainted with it, on account of the dangers along the shore. Olmetto Point is very high, as well as the rest of the coast ; it projects far into the sea, with many detached rocks round it, appearing like lumps of earth tumbled down, and it has a tower on its summit. One mile N W by W from it, and behind another head land equally high, called Three Fountains Point, you find a sandy beach, on which you may land when the wind does not blow from the offing. Two miles farther to the westward is Roccapina Point, with a tower upon it, and a convenient landing place on its west side. In this course there are several rocks near the coast, and some dangers under water, about 1 mile off.

From Point Roccapina to that of Tissano, which rises to a great height, the distance is $3\frac{1}{4}$ miles N W, between them are two coves, separated from each other by Point Barbarino ; the first is called Mortula, and has a pretty extensive sand beach. Very near Point Tissano a small island is seen, called La Botta ; and 2 miles south of the same point, lies another small island,* encompassed with several rocks above and under water ; these dangers are called Li Monachi (the monks) ; they stretch far to the N E, and render the passage between them and the coast very dangerous ; it is to be attempted only in very small ships, and when you are well acquainted with it.

From Tissano Point to Cape Senetozo there are 4 miles N N W : the coast between them makes a bay, in which is a cove, called Tiscara, where the river Mortara falls into the sea. Tissano tower is on the larboard hand of the entrance ; this tower has a few guns with a small garrison to defend the sandy beach, where a landing might be made : the land all around consists of high mountains coming down to the edge of the sea.

Cape Senetozo is very high, with a point projecting into the sea : it has a tower on its top, and round it, very near the land, lie the Eccicha Rocks, or Chimouri Islands : north of these isles you meet with a head land, called Cape China, or Chimouri ; but the whole is known by the name of Cape

* Julien's Chart, which seems to be copied from one of Bellin's, places this island $2\frac{1}{2}$ miles south of Point Roccapina, or $3\frac{1}{2}$ miles from Point Tissano.



Senetozo ; there is a passage for barks and gallies between the point and these islots, in which you have 15 fathoms water.

IV. *Directions for the EASTERN COAST from CAPE SENETOZO to CAPE RIVELATE, near CALVI.*

GULF OF VALINCO, *called likewise GULF OF TALANA, and of CAMPO MORO.*

Ten miles N by W $\frac{1}{4}$ W from Cape Senetozo lies Cape Mulo, the coast between those two capes forming a bay above 8 miles in length, the east end of which is properly the Gulf of Valinco.

This Gulf lies open to the west winds, but has some pretty good anchoring places, on the north as well as the south coast, the principal of these is Campo Moro ; and it is easily known by a huge round cape, at the entrance from the southward, upon which stands a fortified tower, so that you perceive it at a great distance. The latter cape lies 4 miles N E from the small islands off Cape Senetozo ; the land between is very high, and its mountains come down to the shore.

At a musquet shot from the Cape there are two small rocks, which you leave, as well as the tower, on the starboard side, when you are sailing to the anchorage ; as soon as you have doubled those rocks you descry a great cove and a vineyard, on which you steer, and when you find yourself in the cove, you leave the vineyard on the larboard side, so that you anchor between the said vineyard and the tower, at 2 or 3 cables length from the shore, in 18, 20, and 25 fathoms water ; the tower is then bearing N W, and you perceive nothing of the sea in the offing, as the Capes of Campo Moro and Muro are in one, S E and N W ; besides, you are sheltered by the two rocks just mentioned. Merchant ships, barks, gallies, &c. anchor farther within in 10, 12, and 15 fathoms water : they are still better sheltered, and can moor with one cable on shore. This harbour is very good in all sorts of weather ; the watering place is at a spring in the bottom of the cove, about $\frac{1}{2}$ a mile inland.

From Cape Campo Moro $2\frac{1}{2}$ miles N E lies Porticciola Point, which

forms a kind of small bay, named sometimes Porto Giolo. Beyond this point you find another bay, with a very fine sandy beach, which they call Piaggia di Tavarìa; in this place, which is the bottom of the Gulf, Valinco river falls into the sea at Bitorsima Point, where you meet with some rocks.

In summer you may anchor in this bottom of the Gulf, in 15, 18, and 20 fathoms water; brown sand, and clean every where: from thence you perceive the town of Olmetta, 3 miles within the land. Ships may draw nearer the shore, in this place, and anchor in 8 fathoms abreast of the tower of Zillé.

There is another anchorage to the northward, called Porto Propiano; when you come from the sea with a design to anchor there, you must get a sight of Capes Muro and Campo Moro; between both you perceive a great hollow, on the bottom of which you steer; and when you are advanced in that bottom, two small rocks very little above the water are seen, which you leave on the starboard; as soon as they are doubled, you descry a great bay, with two houses; the anchorage is abreast of that which is nearest the sea, 2 cables length from the shore, in 15, 18, and 20 fathoms; white glass, grass, and ooze, and clean every where.

Five miles from Propiano, on the larboard hand, lies Porto Pollo, where the anchorage is only good in summer, and you lie exposed to the S S W winds; the watering place is at the bottom of the cove. Porto Pollo Point runs a good way into the sea, and has several rocks round it; from thence to a very high cape, with a tower on the top, called Cape Nero, and by the French, Cape Negret; the course is W N W nearly, above 3 miles. Between the two, in a bay which is little frequented, is Campanella tower.

From Cape Negret to Cape Muro the distance is $1\frac{1}{2}$ mile westerly. Behind the former cape you find a small cove, named Cala d'Orso, where one or two small vessels may get shelter from the N W, north, N E, east, and S E winds; there are some rocks along the coast, and very near the shore, on the larboard as you enter this cove; at the bottom of it is a little river, with a sandy beach, on which you can land, when the winds do not blow from the offing.

GULF OF AJACCIO.

The Gulf or Bay of Ajaccio, the finest in the island, lies between Cape

Muro to the south, and Sanguinara Island to the north, which stand from each other N by W $\frac{1}{2}$ W, and S by E $\frac{1}{2}$ E nearly, distant about 8 miles: it is every where safe and clear, with a good depth of water, and even in some places you have no ground, and are obliged to anchor close to the land.

The marks for this Gulf are the Sanguinara Island, with its rocks; there are two towers upon it, one of which is very high; the outermost point lies one mile distant from the land point, on which stands also a great tower. Between this land point and the rock nearest to it, there is a channel for gallies, pinks, tartans, and other small vessels; but you must not attempt it, except in fair weather, and before the wind, its width being only 2 cables length, and the depth of water in the middle not more than $3\frac{1}{2}$ and 4 fathoms.

When you are bound to Ajaccio, you must sail at a little distance off the Sanguinara Island and rocks, which you leave on the larboard side, on account of the currents that set towards the shore; when past Sanguinara you enter the Gulf, and perceive within that island, a black land making a hollow, in which there is a champaign ground; then you may anchor 3 cables length from the shore, in 15 and 20 fathoms water; good ground, abreast of a place called Fornaci, near which are a brick-kiln, and a tile-kiln. Two miles farther E S E, a little cove is seen, called Cala Bubicagia, with a house. In coasting along this shore, you perceive a rock above water, called La Botta, or the butt, from its appearance; and 1 mile eastward, another small rock very near the shore, abreast of which stands a chapel; you leave those two rocks on the larboard side, steering towards the citadel, which is left also on the larboard; you must give it a pretty good birth, on account of a sunken rock which lies a cable's length southward of its point; it is about 90 yards in length, and as many in width, with 2 fathoms water on it.

The marks to avoid the dangers as you enter this harbour are the following; when the Butt rock is brought in a line with Sanguinara, you steer directly to it, and as soon as the first centry-box is in one with a big tree full of branches, and over against the convent of St. Francis that stands without the town, then you are abreast of that danger, which you clear the moment you steer out of this mark. You perceive likewise on the starboard several rocks above water, called the Sardineras; along which you may range as

near as you please : within these rocks the largest ships may come to an anchor, if the wind does not permit to enter the harbour, but when it proves favourable, they are to double the citadel at a good distance, leaving it on the starboard side. In coasting along the shore on which the town is built, you perceive the suburb, and next to it the Capuchins Convent ; you sail on till you are abreast of the steps and gate of the said convent ; then you anchor with large ships in 15 or 18 fathoms water, with a mooring on shore, and will be safe in all sorts of weather. At the bottom of the harbour there is a sandy beach on which you can land with facility.

GULF OF SAGONE.

From Sanguinara Point to Cape Fieno the course is north, a few degrees west, 4 miles. Cape Fieno is very high ; 1 mile to the south of it lies an islot encompassed with sunken rocks, and called La Botta, or Cape Fieno Rock ; to which you must give a good offing ; between it and the cape is a small cove for barks ; and behind the cape, on the south side, and nearer to Sanguinara, you find the Piaggia di Santo Antonio, another cove with a sand beach, where you may land.

The Gulf of Sagone has 9 miles in breadth between Cape Fieno and Point Carghese due north from it, and about 6 miles in length. From Cape Fieno, ranging along the south coast of the Gulf, you meet first, 3 miles to the eastward, with Porto Provenzale, a small harbour, wherein you anchor in 8 and 10 fathoms water ; white ground, and grass : it is good only in summer, for tartans and other vessels of that sort, who lie there exposed to the west winds : in coming in you leave the tower on the larboard side, and the flat rock very near the coast, on the starboard side ; the watering place is at a small river at the bottom of the harbour.

From Porto Provenzale to Palmentogia Cove they reckon 6 miles to the N eastward : this cove is pretty deep, and lies between two points, each having a tower, from the northernmost of which to that of Sagone, the distance is 3 miles N N W ; this tower is easily known by its whiteness, which is perceived at a great distance ; before you come to it there is a fine sandy beach, at the end of which the Liamone, one of the most considerable rivers

in the island, discharges itself into the sea ; to the left of its mouth, as you come from the south, are lofty mountains that extend quite to the sea shore.

The harbour of Sagone is very good, and clean every where ; when you intend to anchor there, you must steer towards the white tower, which you leave on the larboard side in coming in ; and ranging along the coast on that side, at a musquet shot distance, there is a small rock under water as you enter. As soon as you have passed the tower, you anchor in 10 or 12 fathoms water, white glass and grass, and carry on shore a cable ; the gallies and tartans anchor farther within in 4, 5, 6, 7, and 8 fathoms ; the watering place is at the river which runs just by. You lie there exposed only to the W S W winds.

From Sagone to Point Corgheze the distance is about 5 miles N W by W, with some small coves between, and a large rock, called Botta Greca, 2 miles from the point, and one mile off the shore. The whole of this part is without inhabitants, and the land is all high mountains almost close to the shore. Point Corgheze is known by the tower on the top of its mountain, which projects a great way into the sea.

The Coast from POINT CORGHESE to PALACA.

The distance from Point Corgheze to Point Domigne is $1\frac{1}{2}$ mile N W, with a deep cove between ; and from the latter to the next point you have about the same distance north, some degrees east. This is called Point Dorchino, and has a tower, abreast of which are some breakers, at a musquet shot from the coast : between the two points you find a bay $1\frac{1}{2}$ mile in length.

From Point Dorchino to Cape Rosso the course lies north $4\frac{1}{2}$ miles : this cape is known by a tower that stands upon the high land, which continues from the mountain coming close to the sea : it is surrounded with rocks above and under water, the largest of which is named Palo Island.

From Cape Rosso to Ozani Point and mountain they reckon 6 miles N E by N. These two capes form the entrance of the Gulf of Porto, which is very little known, and frequented only by small vessels ; its south coast is bordered by several rocks, and remarkable only, as well as the north coast, by very high mountains.

Giralate Bay lies between Point Ozani and Cape Sandola, which are about 3 miles distant from each other, N W and S E. This bay is not good, though it has an anchorage towards the bottom, which you fetch in steering towards a fortified tower seen upon the high land. In the corner there is a kind of bason, where gallies or other vessels could anchor, if the ground were clean; though a safe birth may be found for 5 or 6 of them, by passing through the middle, and leaving always the tower on the larboard side. You anchor in 5 and 4 fathoms water; ooze and sea-weed; and lie exposed only to the south and S W winds; the watering place is at a small river. In this bay the famous John Doria took the corsair Dragut, and his whole fleet of 18 ships, in the year 1545.

Between Giralate tower and Cape Sandola there are two small coves, in a distance of $2\frac{1}{4}$ miles; and from this cape to the Isle and Point Gargana the course is N $\frac{1}{4}$ W 4 miles; this coast is steep and desert; making the foot of a high mountain, which is called Monte Capo Gardiolo.

Gargana Island is very high, and about 2 miles in circumference, with a fine tower upon it, from which they can see at a great distance. This island is separated from the main by a narrow channel, whose width is only the length of a brigantine; small vessels go through it, and there is a depth of water sufficient for gallies.

At the point of the main land, which they name Point Gargana, two detached rocks are seen, one called Palaca, to the west; and the other La Librecci, to the east.

The Coast from PALACA to CAPE RIVELATA.

From Palaca to Cape Rivelata the distance is above 14 miles N E $\frac{1}{2}$ N. One mile beyond Point Gargana you find Elbo Cove, which is called also Il Imbutto, or the Tunnel, on account of its form; when you enter it, you must be cautious of a rock near the coast; at the bottom of the cove is a rivalet, whose water is very good.

Punta Bianca, or white point, lies 1 mile from Elbo; it rises much, running out into the sea, with a detached rock very near its pitch.

From thence to Focalara they reckon 2 miles; and $\frac{1}{2}$ mile farther are the

Galeria islots or rocks, which stretch off near 1 mile from the land. Two miles west of these islots is Port Galeria, with a river, and a garrisoned tower; it is fit only for small craft, which are drawn there ashore.

Between this port and Cape di Vela, to the north, the distance is about 6 miles, the coast high and steep, with a fine cove, which bears the same name with the cape, and has a sandy beach and a river; at the entrance of this cove, on the north side, is a small island very near the land; the anchoring is very bad here, as you lie too much exposed to the winds which blow from the offing.

From Cape di Vela to Capo Cavallo there is $4\frac{1}{2}$ miles, and a very high coast, with a tower on the summit of the mountain; and from thence to Cape Rivelata, 5 miles to the N E. This head land rises to a great height, and is very easily known; it has a detached islot very near its easternmost point; and on the west side a small cove, called Porto Vecchio; and another islot named La Piquina.

V. *Directions for the NORTHERN COAST from CAPE RIVELATA to CAPE CORSO.*

HARBOUR OF CALVI.

The road or harbour of Calvi has 5 or 6 miles in circumference, the entrance lies N N E and S S W, and ships are exposed to the N E-wind; the town stands to the west on a peninsula. Ships do not anchor on the east side, between the small cape at the entrance and the bridge on the largest of the two rivers which fall into the bay, because the bottom is full of rocks; but from the bridge to the town the anchorage is very good: when you intend to remain here for a while, you anchor between the town and St. Francis's church in 4, 6, and 8 fathoms water: the watering place is at the bridge river, which is never dry.

To anchor in this road, the rocky point which lies the outermost from the fort is to be brought to bear N $\frac{1}{4}$ E, and N N E, at 3 cables length; and Cape Spano, that is on the larboard in coming in, with the two islots of Larmo near it, must bear N E 5° E, distant $1\frac{1}{2}$ mile; you are then in $8\frac{1}{2}$

fathoms water : sand and sea-weed ; two cables and a half length from the shore, where you carry the cable under the fort to some big rocks lying to the north ; you must back your great anchor to the south, because you are apt to drive there. Four or 5 large ships only can anchor conveniently in the road, with 15 or 18 tartans, and other vessels, nearer the land, in 3 and 4 fathoms, same ground as before, with a cable always on shore to the rocks, or to some iron rings which are in the wall of a tower above the fort. You may range along the fort as near as you please, and along the point, with the two islots at two cables length, more or less ; you have not less than 2 fathoms water at two cables length all round the bay.

Calvi is easily known, the town, as we have already said, being situated on a neck of land, which projects into the sea like a cape. In coming from the west you descry Cape Rivelata, and the islot at its pitch, between which and the main the channel is only fit for a boat ; you may come very close to this islot without fear ; and when you have doubled the cape, you see the town of Calvi distant from it about 2 miles S S E. Between the cape and Calvi is a deep bight, called Revelata Bay, and in which there is an anchorage very near the land in 8 and 9 fathoms water, quite open to the north wind.*

The Coast between CALVI and St. FIORENZO.

Two miles to the east of Cape Spano lies the small bay of Algaiola, and between them the Coves of St. Ambrosio and St. Damiano. Algaiola Bay has neither harbour or creek, and small vessels which come there cannot even be drawn ashore ; it is only a bad road for a few barks and feluccas in

* "The only objection (says Mr. Boswell in his Account of Corsica, p. 18), I ever heard made to it (the port of Calvi), was by a French gentleman, who told me, that the bottom of it was full of sharp rocks, which were apt to cut the cables of ships which entered it. And he instanced one of the transports, which had landed some of the French troops in 1764. He, however, was under a mistake ; for I have been at pains to inquire very particularly concerning this, and am informed from the best authority, that there is nothing to fear from rocks at Calvi, and that the French transport which suffered a little there, happened to be run foul of by some of the rest, which was the occasion of the damage it sustained."

fair weather. There is a fort with a few houses, to which they give the name of town; but it is certainly one of the most wretched in the island; the road lies on the starboard side of the suburb of that town; at $\frac{1}{4}$ mile N $\frac{1}{4}$ W of Algaiola are three rocks, which lie north and south, and must be carefully avoided; you may, however, with gallies and other vessels pass between them and the land.

About 4 miles N E by E of Algaiola is Isola Rossa, or red island, which the sea has divided from east to west, making now two islands, the northernmost of which has a tower with a garrison. The channel between Isola Rossa and the land is narrow, and difficult even to feluccas. On the main land there is a strong tower, called Palombara, with a good garrison, and some batteries, near which you find a cove, where small vessels may anchor, and take shelter; when going into this place, you must take care of a rock under water which is steep to. "Isola Rossa, says Mr. Boswell, "is but a little harbour, but has a considerable depth of water, and is defended by a small island against the westerly winds."

From Isola Rossa to the cape and mouth of Ostriconi river, one of the largest in the island, the distance is about 4 miles to the east; on that course is a ledge of rocks, called the Marglini, very dangerous, but very near the shore.

From Cape Ostriconi the coast turns round towards the N E near 4 miles to Cape Renel; then to the east 4 other miles, as far as Point Peralto, and afterwards 2 miles E S E to Cape Mortella. All this part, called Egriate by the natives, consists of high mountains quite close to the sea, and though the coast is much indented, and has many coves, it affords no shelter whatever, being open to the north and west winds, which would prove very dangerous there.

GULF OF ST. FIORENZO.

The Gulf of St. Fiorenzo is above 3 miles deep, and $3\frac{1}{2}$ broad, from Cape Mortella on the west side, to Point Vecchiaria on the opposite coast. There is a tower on Cape Mortella, with an anchoring place abreast of it, and a sandy beach at the bottom of the cove; you may ride there in 12 and 13 fathoms water, at three cables length from the land; you may even come

nearer in 8 or 9 fathoms, and moor on shore ; but then the winds from the north and N E might become dangerous.

When you come from the west into the Gulf, you must not approach Cape Mortella nearer than 2 or 3 cables length, on account of the rocks which lie thereabouts.

Three miles S S E of Cape Mortella is Porto* Forno, abreast of which, at a distance of about $\frac{2}{3}$ of a mile, there is good anchorage for all sorts of ships in 13 and 14 fathoms water ; but you generally anchor nearer the land, at 3 or 4 cables length distance, in 9 and 10 fathoms ; oozy ground ; then you have the following bearings, viz. the town of St. Fiorenzo S E $\frac{1}{4}$ S ; Porto Forno west ; Cape Bianco N N E ; and Mortella tower N $\frac{1}{4}$ W.

In this Gulf you are exposed to the north wind ; gallies and tartans anchor near Porto Forno in 4 fathoms, and a cable on shore ; but there are some rocks in this part which must be avoided.

In the innermost part of the Gulf, over against the town or village of St. Fiorenzo, there is an anchorage for gallies, and other small vessels ; but when they go there they must take care of a rocky ledge, in part above water, whose extent is about 200 yards, and at a distance of about 500 from the coast. There is also another rock under water, of the bigness of a large boat, on which the sea breaks sometimes ; it lies at 500 yards to the north of the end of the town ; and you may pass between this rock and the ledge in 5 and 6 fathoms water.

When you enter the Gulf of St. Fiorenzo, or when you are coming out of it, you always take the mid-channel, but rather nearer the west than the east shore ; because when you are without Cape Mortella, if the winds have prevailed from the S W and S S W. you most commonly meet with high seas which drive you to the east coast, where the water is so deep that no anchorage is to be got there ; whereas on the west side you can anchor every where, when you are past Mortella tower, from 35 to 4 fathoms water.

This Gulf is capable of containing a large fleet of men of war. When you are at anchor in the southernmost end, you get your water at a spring, in a building that stands near the walls of a ruined city. This place, above

* This cove is called likewise Fornacchio, Porto Fornali, and St. Nicholas's Cove.

all others in the island, is the most convenient, as well as the most advantageous to effect a landing; there is a fort on the sea shore which defends the anchorage, and to oppose the landing that can be made upon a fine sandy beach on the west side.

To the southward of the town, about a $\frac{1}{4}$ of a mile, are some low marshy grounds, which make St. Fiorenzo so sickly, that few people choose to inhabit it, and the garrison there must be changed every month.

*The COAST from the GULF of St. FIORENZO to the NORTHERNMOST
END of the ISLAND.*

From Point Vecchiara to the point called La Testa the course is above 16 miles north. At $1\frac{1}{2}$ mile from Vecchiara lies Farimole beach; and 3 miles farther that of Negro, where there is a tower; and 2 miles north of this, the village of Nonza on a high rock, on the extreme pinnacle of which, some hundred fathoms above the sea, and directly perpendicular, stands a tower which commands the avenue to it.

Two miles and a $\frac{1}{2}$ from Nonza you meet with Point Canelle, near which lies a rock in part above water, where you see breakers, and 3 miles farther north lies Point Minerbo, remarkable for its height. From Minerbo to La Testa they reckon 6 miles, and three coves of little note. A mile S W of La Testa are the three small islands called St. Mary's; the easternmost of which almost touches the main land; and near it is a tower, with a cove for small vessels.

Punta di Corno di Becco is about 3 miles distant from La Testa N E by N. It is a pretty high point, behind which are seen lofty mountains inland; and very near it to the S W, lies another point a little lower, and which is called Cape Bianco, or the white cape. Above 1 mile E N E of Corno di Becco stands the Tower of Tolare, with a rivulet running down the mountains; and $1\frac{1}{2}$ mile farther is Baraccio Point, the northernmost end of the island, to the north of which, at the distance of above 1 mile, is the island of Giraglia, where we have begun the description of the coasts of Corsica.

APPENDIX.

Description of the PORT of CHERBOURG, with the new Works now constructing to cover and defend that Road.

THE scheme of inclosing the Road of Cherbourg was first projected in the last century, after the memorable battle of La Hogue in 1692. Marshal de Vauban, the inventor of that scheme, proposed to make two jetties, one from Isle Pelée, the other from Point du Hommet, with only one entrance, and that in the centre between the two; but the long war concerning the Spanish succession, and the very bad state of the French finances after the death of Louis XIV. prevented their paying any regard to Vauban's plan; and the only attempt to improve Cherbourg (not its Road) was made many years after by Cardinal de Fleury under Louis XV. A bason was then constructed large enough to contain 400 vessels and ships of 40 or 50 guns; a large sluice was likewise built between the bason and the harbour for the purpose of cleansing and deepening the channel. This sluice was demolished in August 1758, by the English army that landed near Cherbourg; since that time nothing further has been done to either the harbour or the Road, until 1783, when Marshal de Castries, minister of the navy, carried into execution the idea of Vauban, and began the inclosing of the Road with two Moles or Dykes, by means of Conical Caissons, instead of the two jetties originally intended.

The distance from Querqueville Point to Isle Pelée is about $4\frac{1}{2}$ miles; between these points two Dykes or Moles were proposed to be made, leaving at each extremity entrances of 1066 yards each, and one in the centre of 853 yards wide. The north-west entrance is protected by Fort Monsieur, built on Querqueville Point; the north-east entrance by Fort Royal on Isle Pelée, and the middle entrance by Fort d'Artois on Point du Hommet.

The breadth of the proposed harbour is about two miles towards the town of Cherbourg and the Fosse du Gallé, where the water rises from 18 to 20 feet at spring tides; the latter place is well secured from the N W and N E winds, and is to be enlarged, by taking in a piece of ground adjoining, called the King's Meadow, so as to contain 100 vessels: docks are also intended to be built there.

Fourteen Cones have been sunk, the first is placed about 1066 yards from Isle Pelée, the rest are from 130 to 140 yards from centre to centre; they are ten feet above high water mark at common tides; are completely filled with stones; and the frames from the top to low water mark (which is about 25 feet) are covered with strong plank, and plastered with Pozzolana. The intermediate spaces between the Cones are filled with loose stones, to about three feet above low water mark, and 50 feet broad, so as to form a Dyke or Causeway; upon the north and south sides of these intervals are strewed large quantities of live muscles, which, together with the sand and sea weed, are designed to fill up the interstices, and to form such a rocky substance, as to increase and strengthen the whole continually; the top of the Dyke was proposed to be further strengthened with masonry, but it has not been executed.

In the course of the winter 1785, the second Cone from Isle Pelée was broken by the violence of the surf, in consequence of which another Cone has been sunk in its place: only one Mole was intended to be built until the stability and effect of the plan had been fully ascertained. However, during the progress of the work it was discovered that several of the Cones had received great damage from the very heavy seas which the N W gales of wind drive upon that coast; it was thereupon resolved to discontinue the use of them in future, and to form the Dykes with loose stones only. This latter method has been invariably followed ever since, and is attended with great success.

It has also been determined to unite the two Moles or Dykes into one, by shutting up the proposed middle entrance, or Passe du Hommet, thereby to insure more effectually the quiet of the harbour, the two extreme entrances at Isle Pelée and Point Querqueville being deemed sufficient for every purpose.

There are nine fathoms at low water in the new harbour, and the tide rises 20 feet on full and change.

Fort d'Artois, situated on the Point du Hommet, forms an obtuse angle towards the middle entrance; the N W face contains 11 pieces of cannon, the N E 14 pieces, the west flank four, and the east flank two, which are all 48 pounders, upon marine traversing platforms; the batteries towards the sea are casemated, and surround the inclosure of the Gorge, which is of an irregular form. The barracks are also casemated, and are intended to serve as a kind of blockhouse, being (by means of a small ditch) detached from the batteries, and are pierced with loop-holes.

Fort Royal, on the Isle Pelée, is of a circular form towards the sea, and is closed in the Gorge by a small regular front; the barracks are formed in the rear, and pierced with loop-holes, those in the flank are large enough to admit of small cannon being used. The batteries and barracks are all casemated, and planned upon the same principle as those of Fort d'Artois; this fort mounts a greater number of cannon than Fort d'Artois, the object being to protect the north-east entrance; 16 pieces are therefore directed to that part, and which likewise flank the eastern Mole. Isle Pelée is always covered at high water, and the shore towards the opening is very bold.

Description of the Truncated Cones, or Conical Caissons, invented by Mons. De Cessart, Inspecteur Général des Ponts and Chaussées.

The Conical Caissons are of various sizes, from 147 feet diameter at the base, to $170\frac{1}{2}$ and 179 feet. The first Caisson was 158 feet diameter; consequently the whole surface of its base was 19596 square feet, and, including its casks, covered about half an acre of ground. It was judged proper not to close the bottom of the Caisson, nor let it touch the ground, but only to rest it on the upright timbers which composed the frame, and by which it might be floated with greater facility. The perpendicular height, as well as the diameter of the upper circle, is 64 feet, though some of the Caissons may be 80 feet high, according to the depth of the sea.

The Caissons are composed of 80 or 90 upright timbers or beams (ac-

cording to their respective diameters), which are lined from end to end, and are built of pieces of timber from 24 to 30 feet in length; these are sustained by 20 circular ribs on the inside, and by 8 ribs on the outside, which, as well as the beams, are about 13 inches square. They are fastened together by iron bolts, weighing from 21 to 32 pounds, which are tinned over with a new composition, to prevent the marine acid from rusting them. There are 6000 bolts in each frame.

The talus, or slope of the Caisson, is $7\frac{1}{2}$ inches per foot under an angle of 60 degrees; its immersion is 60 feet at the highest spring tides, and 38 feet at the lowest neap tides. A Caisson contains $25243\frac{1}{2}$ cubic yards of stones, weighing 52465 tons, at about $2\frac{1}{4}$ tons to each cubic yard; the base is loaded with about $93\frac{1}{2}$ tons of stones, which is done before they set it afloat, in order that the Caisson, on its immersion, may settle so as to resist the force of the tide of flood; the perpendicular rise whereof, being about 19 feet, would be able to raise the Caisson one seventh part of its whole height.

The weight of a Caisson so loaded is $770\frac{1}{2}$ tons; they were set afloat by means of 64 large casks, about 12 feet 9 inches in length, and about $6\frac{1}{2}$ feet in diameter, and of 30 or 40 others of smaller dimensions, which were made fast round the base of the Caisson with strong cables, $7\frac{1}{2}$ inches thick. From an experiment made in the Port of Cherbourg, each large cask was able to raise a mass of cannon ball, weighing nearly $14\frac{1}{2}$ tons, and the buoyance of the whole was equal to 915 tons; so that there remained an overplus of weight equal to about $144\frac{1}{2}$ tons, in case of accidents.

A cable-netting was formed at the base, to counteract the force of the surrounding casks, which, from their great power, would otherwise have torn the frame to pieces as soon as floated; 4 large casks were placed in the centre to keep the netting perfectly tight. When the Caisson was immersed, the netting remained at bottom, but the casks were preserved.

The Caissons were towed to the place of their immersion by means of a capstan, placed on a ponton, worked by 40 men; four large flat-bottomed boats, with 72 oars each, towed the ponton. In calm weather they advanced about 12 or 13 yards in a minute, or near half a mile in one hour.

There was likewise a frigate moored beyond the place of immersion, with a capstan, to which a cable (fastened also to the Caisson) was secured, to direct the towing, that it should not deviate from its proper course.

The immersion of a Cone was completed in one hour at most, by the successive removal of the casks; which was effected by means of hatchets having long handles or beams at right angles with the blades; these were fixed in a perpendicular direction round the bottom of the Cone, and communicated with the gallery by ropes. The hatchets weighed about 120 pounds each, were numbered four by four, and upon being drawn up the side of the Cone to a certain height, were let fall upon the braces of four of the casks diametrically opposite to each other, in the whole circumference of the base. This method was followed with the view of preserving an equal balance during the progress of the immersion; the four casks fastened at right angles in the centre of the base, were not cut loose till after the Cone was completely sunk.

If to a Caisson with its ballast, weighing $77\frac{1}{2}$ tons, be added $25243\frac{1}{2}$ cubic yards (weighing 52465 tons) of stones, which the Caisson contained, the whole mass would then weigh $53235\frac{1}{2}$ tons. From this calculation, supposing the Caisson entirely covered with water, the action of the sea would operate against the conical mass, at most, only with the force of $25243\frac{1}{2}$ cubic yards of water, weighing 19832 tons; which being deducted from the total mass ($53235\frac{1}{2}$ tons), there remains to the Caisson, in the most unfavourable circumstances, a preponderating weight of $33503\frac{1}{2}$ tons, to resist the power of the sea.

About 150 small vessels, called *Chasse-marées*, were employed in transporting stones for filling the Caissons and the intervals; and the number of men employed upon the different works were about 3000.

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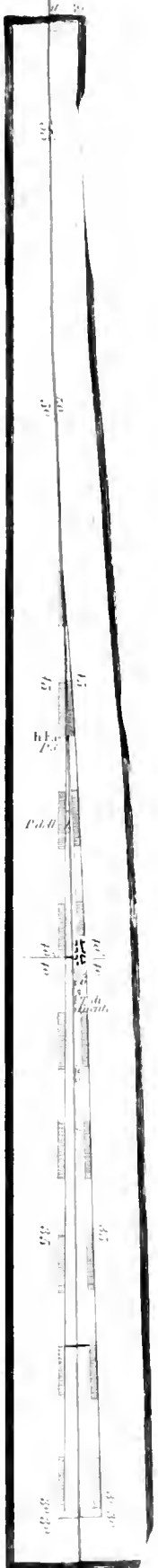
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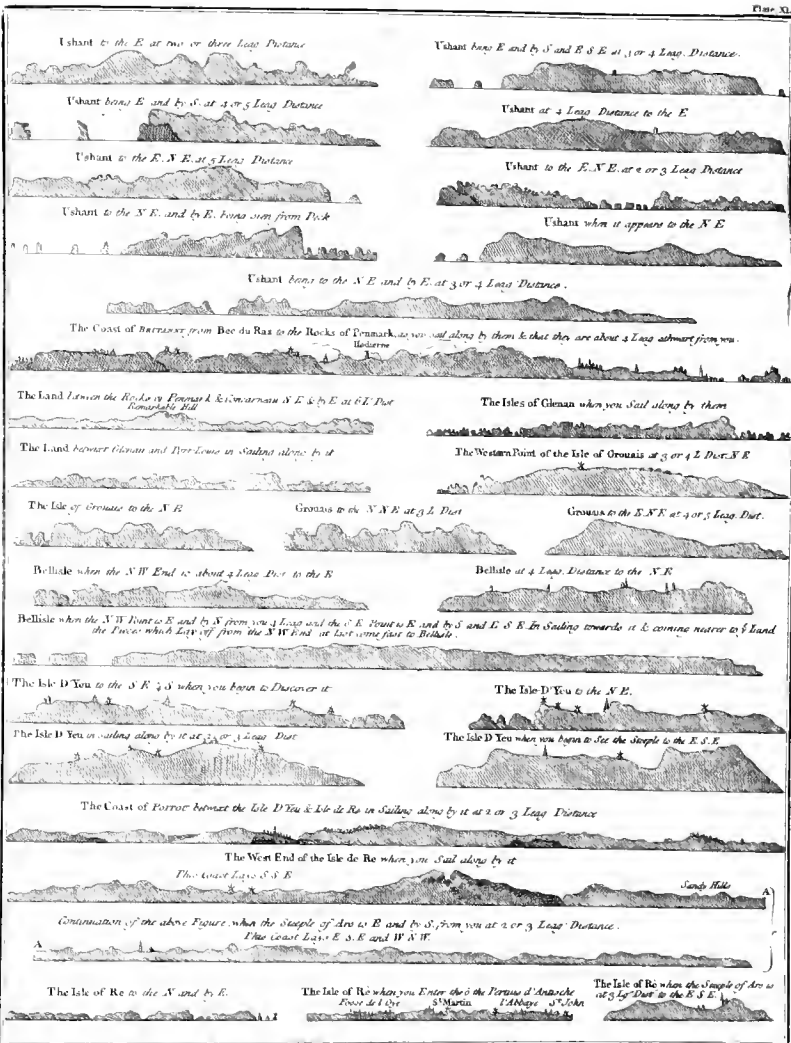
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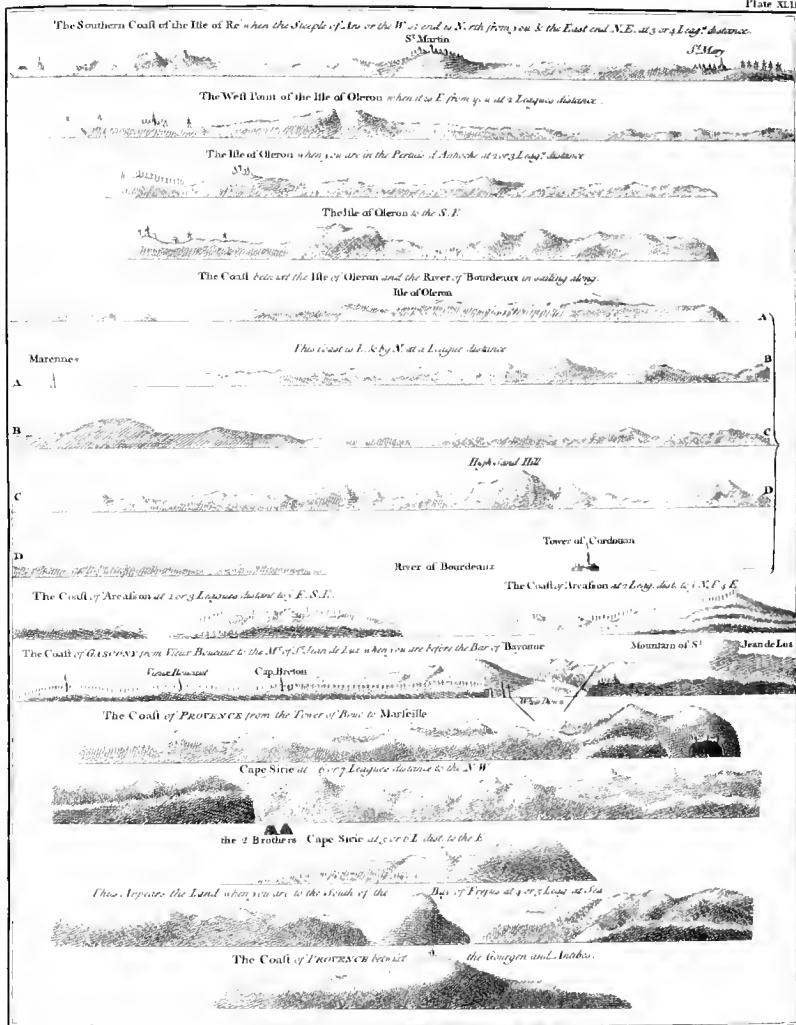
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